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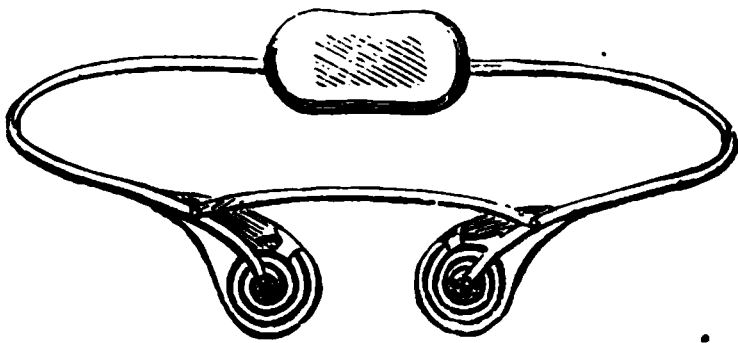
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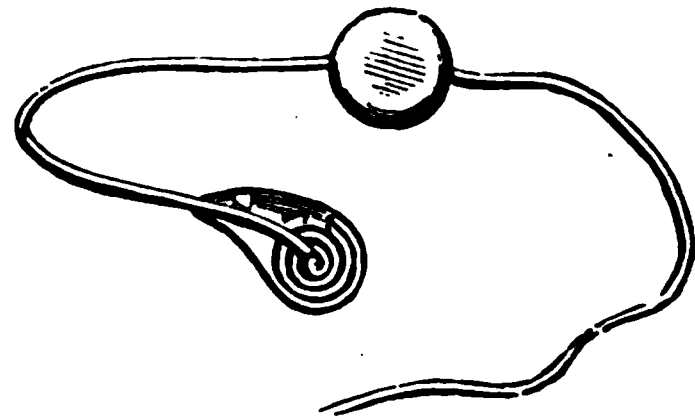


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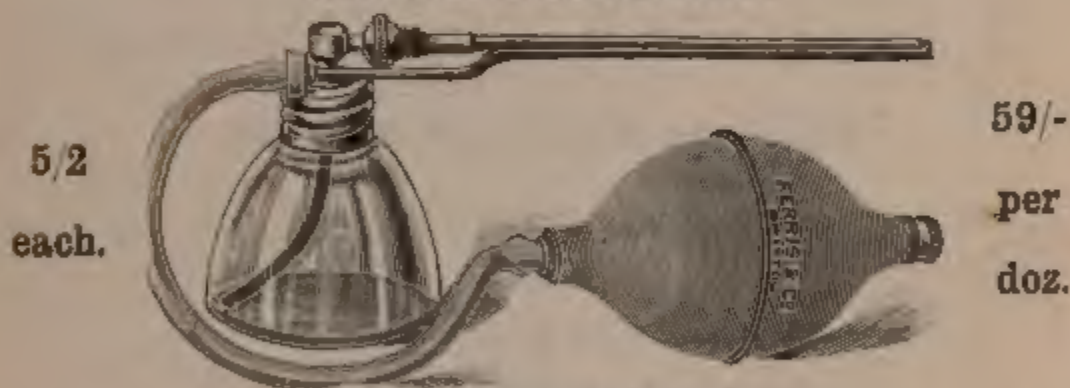
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1. The purpose of this document is to provide information regarding the proposed changes to the [redacted] and to seek public input on these changes. The proposed changes are intended to improve the efficiency and effectiveness of the [redacted] and to ensure that the [redacted] is able to meet the needs of the [redacted].

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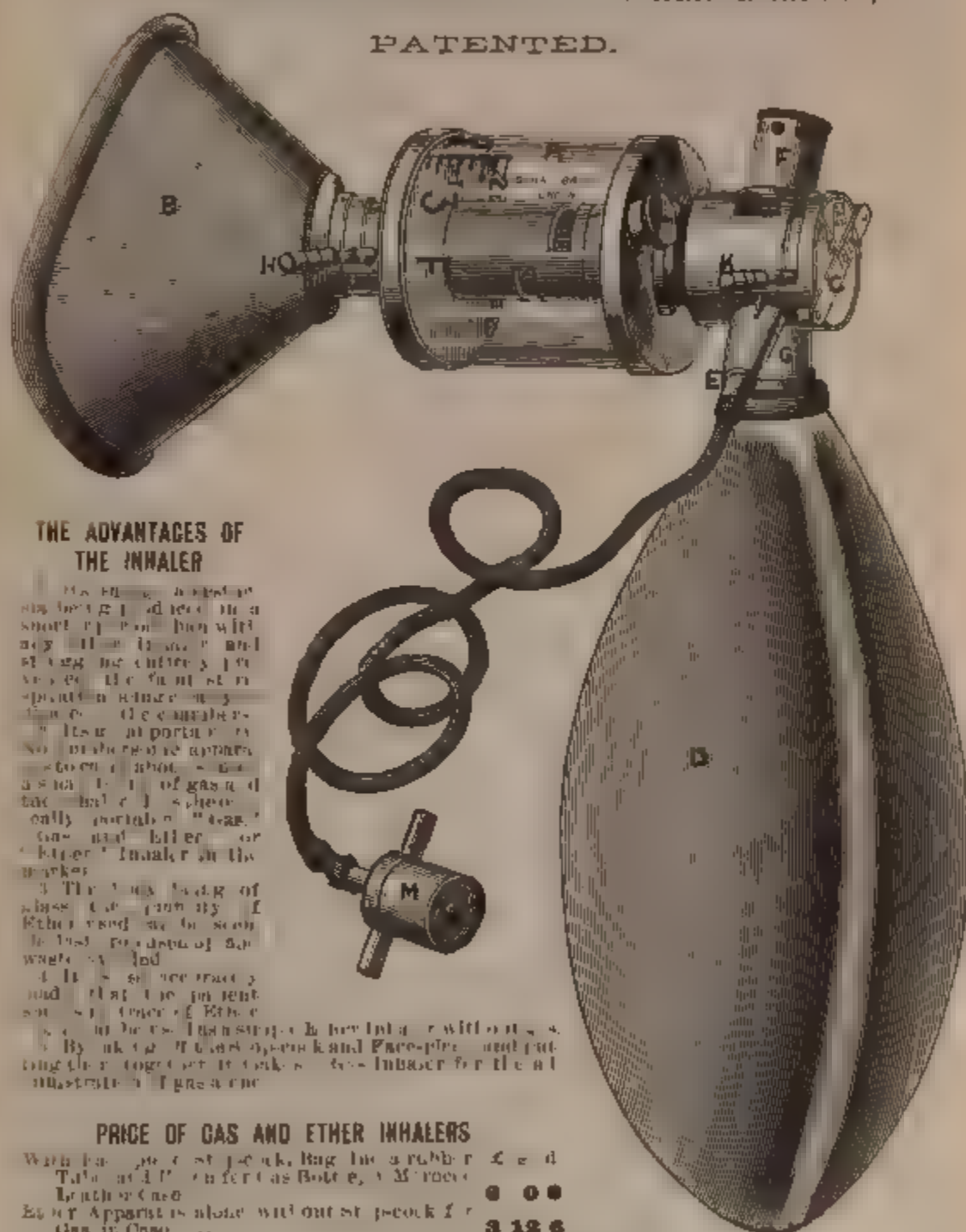
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THE  
**YEAR-BOOK OF**  
**TREATMENT**

FOR

1896

*A CRITICAL REVIEW FOR PRACTITIONERS OF  
MEDICINE AND SURGERY*

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THE  
YEAR-BOOK OF TREATMENT  
FOR 1896.

---

DISEASES OF THE HEART AND  
CIRCULATION.

BY SIDNEY COUPLAND, M.D., F.R.C.P.,

*Physician to the Middlesex Hospital.*

---

THE year has not been marked by the introduction of any new cardiac remedies or methods; but—in England, at least—there has been no abatement in the interest recently awakened in the treatment of certain forms of cardiac derangement carried on at Nauheim for many years past. Several papers descriptive of the process have been published, and also a small monograph by Dr. Bezly Thorne. It has been pointed out that the plan—except as regards the mineral bath—does not materially differ from the system of Swedish gymnastics introduced by Ling. A discussion upon cardiac therapeutics which took place at the Edinburgh Medico-Chirurgical Society early in the year was very valuable as affording opportunity for many personal experiences, especially upon the indications and utility of the group of cardiac tonics. The papers by Prof. Fraser, Drs. Balfour and Byrom Bramwell, together with the views expressed by the various speakers, may fairly be taken to indicate the present standpoint of the subject; and hence they have been largely utilised in the following summary.

VALVULAR HEART DISEASE.

**1. Treatment of acute rheumatic endocarditis.**

**R. Caton** (*Liverpool Med.-Chirurg. Journ.*, July, 1895) states that during the last thirteen years he had set himself to get information on two points (1) as to how the occurrence of

endocarditis may be prevented during acute rheumatism; and (2) whether or not, when it does occur, in its incipient stage, any treatment would favour recovery. After four years' trial of treating the rheumatism and doing nothing for the endocarditis beyond the use of partial blistering, or leeches, or poultices, he decided to adopt some definite method. It seemed to him that a succession of blisters about the cardiac region, together with the internal use of potassium or sodium iodide, gave as much promise as any other method, and he decided to adopt it, especially as he had already in one case noted the disappearance of an aortic systolic bruit under these measures. He first describes the general treatment of these cases of acute rheumatism, and in particular the maintenance of perfect rest and avoidance of chills as likely to lessen the liability to cardiac complications. The proportion of cases in which the heart is affected is variously given by different writers. Codet puts it at 31 per cent.; Picot at 73 per cent.; Church (St. Bartholomew's) at 60 per cent.; Mansir and Shadwell (*Guy's Hosp. Rep.*) over 50 per cent. Caton's own proportion among 300 cases is under 20 per cent. He remarks that if the term "acute rheumatism" be restricted to the highly febrile type, the high estimates, 60 to 80 per cent., will probably be correct. He tabulates and analyses fifty-two cases of cardiac rheumatism, in the majority of which the endocarditis was mitral; the aortic valves were affected in five, and in seven pericarditis occurred. Incipient endocardial inflammation which often occurs *pari passu* with the arthritis, is denoted by a prolongation and "woolly" character of the first sound, soon to give place to a definite bruit (generally systolic, occasionally presystolic, or both) accompanied by an accentuated second sound in the pulmonary area. The treatment is then described:—

"As soon as the bruit is perceptible, or even prior to that—during the preliminary stage of 'woolliness'—we at once give potassium or sodium iodide in 10-grain doses thrice daily, in addition to the salicylates, and apply over the apex a blister about the size of a florin. As soon as the irritation of this blister is subsiding, we apply a second close to it, then a third, and so on, keeping the patient, meantime, as quiet as possible, strictly forbidding exertion, exposure, or too much nitrogenous food. . . . Frequently, in a week or ten days' time, I have had the satisfaction of noting a general subsidence of the bruit; day by day it becomes less clear and distinct, until at length it is found to be entirely absent."

Prolonged rest in bed is a great factor in the treatment. The

thirty-nine cases so treated were, on an average, confined to bed for thirty-five or thirty-six days. Many of them were kept under observation for a long period subsequently. The results are certainly surprising; but every care was taken to make the observations accurate. Of thirteen cases not treated, or imperfectly, twelve left hospital with a bruit. Of thirty-nine treated as above, twenty-nine left hospital with normal heart sounds, and ten with a bruit.

The principle of treatment—iodides internally, and counter-irritation—has been recommended by Walsh in England, André Petit in France, and Rosenstein in Germany, the last-named advocating blisters to both front and back of the chest. Caton points out that its rationale is based on the reflex stimulation of the trophic nerves of the heart by stimulation of cutaneous nerves, nature being thereby assisted to overcome the perverted action of inflammation; and in the value of iodides in absorbing inflammatory products of low vitality.

[It should be stated that Caton in every sense satisfied himself, so far as is possible, that the bruits were of organic origin. Indeed his statistics as to the frequency of endocarditis prove that his criteria are rigid. As the only possible alternative explanation for the disappearance of the murmurs would be that they were hæmic rather than valvular, he must be congratulated upon his results, which embrace cases observed over many years. The value of prolonged rest in bed is recognised by all; but blistering is, for the most part, confined to cases of pericarditis. The plan of treatment is one which should certainly be fully tried by others, for the results above recorded are most encouraging.]

Byrom Bramwell (*Edinb. Med. Journ.*, May, 1895), after stating that in very severe acute valve lesions no treatment avails, gives it as his opinion that much can be done for the less severe cases, as exemplified in acute rheumatic endocarditis. He lays chief stress upon the importance of *rest* in removing valvular strain, not only during the acute stage, but for months or even years afterwards. It is also essential to maintain the heart muscle in a healthy state of nutrition, to regulate the gastrointestinal, hepatic, and renal functions, and give tonics, as quinine, strychnine, arsenic, and iron.

## **2. Treatment of heart failure in chronic valvular disease.**

T. R. Fraser (*Edinb. Med. Journ.*, April, 1895), in the paper on "Remedies Employed in Cardiac Affections" which was read at the Medico-Chirurgical Society of Edinburgh, and gave rise to an important debate (*v. infra*), related several cases of various forms

of valvular disease in which good results were obtained by the administration of strophanthus. The pulse-tracings accompanying the records show in a striking manner the influence of the remedy.

(a) *Mitral lesions, regurgitation.*—(1) A married woman, forty-two, suffering from dyspnoea, palpitation, sleeplessness, dyspepsia, vomiting, cough, and moderate anasarca. Pulse very feeble, irregular; systolic mitral bruit; pulmonary oedema; albuminuria. Rest in bed, and careful dieting, producing no change at end of eight days, ordered 6 minims of tinct. strophanthi thrice daily. Pulse-rate, which had been 160 to 130, fell to 96 day after administration began, the irregularity diminished, and on sixth day rate was 88, and on twentieth day 55. The symptoms disappeared, and she left hospital at end of five weeks feeling strong and well. The daily quantity of urine, which before treatment had on an average been 24 ozs., rose to 94 ozs. on third day, 62 ozs. on fourth, 80 ozs. on fifth, and 70 ozs. on sixth, before which day the oedema had disappeared. (2) A porter, fifty-five, intemperate, suffering for six weeks from shortness of breath, sleeplessness, cough, palpitation, swelling of legs. General anasarca; bronchitis; enlarged liver; heart dilated; mitral incompetence; no albuminuria. On fifth day was given 8 minims of tinct. strophanthi twice daily. There was rapid improvement, and diminution in size of liver. He left hospital at end of four weeks' treatment. Urine increased from 27 ozs. daily to 46 ozs. first day of treatment, 56 ozs. second day, 126 ozs. third day, 116 ozs. fourth day, 116 ozs. fifth day, 70 ozs. eighth day, by which time dropsy had disappeared.

(b) *Combined mitral and tricuspid lesions.*—A cabman, fifty-two, suffering from orthopnoea, general anasarca, extreme weakness, and cough. There were cyanosis, distended and pulsating jugulars, mitral and tricuspid incompetence, bronchitis, and pulmonary oedema. Six days after admission was put on tinct. strophanthi, 4 minims every two hours during the first twenty-four hours, and then every eight hours. Improvement took place from the first, and urine increased. A change in source of supply of the drug was followed by a cessation of diuresis, and the anasarca had to be reduced by puncture and drainage of the legs.

(c) *Mitral stenosis.*—"The direct and uncomplicated effects of mitral stenosis are not so conspicuously benefited by them"—i.e. those therapeutic agents of the class to which strophanthus belongs—"as are those of regurgitation. It is obvious that the relatively small muscular structure of the left auricle does not



afford much opportunity for the action of a remedy which produces its benefits by increasing the contractile energy of the heart's muscle. Fortunately, however, mitral stenosis is a lesion in which compensation is generally fairly successfully established by spontaneous changes, and if the patient is careful not to over-tax the heart, the asystole of non-compensation and the consequent need for treatment by cardiac tonics of this group may be delayed for many years."

(d) *Aortic lesions*.—Here also, especially in stenosis, there is spontaneous compensation which may continue indefinitely. In such cases these remedies would do harm by over-stimulation, and the left ventricle become hypertrophied beyond the needs of the circulation. This might so increase the nutritive requirements as to lead to failure of compensation from lack of adequate nutritive supply. Such a result would be more likely to ensue if the substance were not only a tonic of the heart-muscle but also of the blood-vessels, especially if its constricting action on the blood-vessels exceeds its power to increase the contractile energy of the heart's muscle, as digitalis does. After referring to remedies for the relief of angina (*q.v.*) and to the efficacy of iodide of potassium, Fraser relates a case of non-compensated aortic regurgitation in which benefit was derived from direct cardiac tonics. The case was that of a foundry-man, aged fifty-seven, who had strained himself when lifting a heavy weight nine weeks previously, followed four weeks later by anasarca and cough. He had intense dyspnoea and precordial pain; there was marked anasarca, some ascites, enlarged liver, and jaundice; aortic regurgitation; bronchitis, œdema of lung; cyanosis and jaundice. No relief being obtained from hypnotics, expectorants, and external applications, he was, on fourth day, put on 5 minims of tinct. strophanthi every four hours, the frequency of the dose being reduced to six hours on the next day, and eight hours on the ninth day. There was rapid improvement. The pulse-rate fell from 103 to 70; the respiration—previously marked by continuous dyspnoea, with frequent intervals of orthopnoea and Cheyne-Stokes breathing—became normal on eighth day of treatment. Anasarca disappeared and hepatic enlargement diminished, there being free diuresis established (urine increasing from 24 to 116 ozs. on fourth day). As precordial pain occurred now and then, he remained in hospital for three months, taking strophanthus.

(e) *Combined aortic and mitral lesions*.—When, owing to the supervention of cardiac degeneration, dilatation and auriculo-

ventricular regurgitation ensue, cardiac tonics are indicated. Two cases are related—one of a man aged sixty-five, the other a man aged twenty-eight—who presented this combination with symptoms of heart failure. Each received strophanthus, given in the first case on day of admission. There was a marked fall in pulse-rate (136 to 92) and great diuresis. In both cases the result was good.

(f) *Aortic regurgitation, with cardiac degeneration.*—A severe case complicated with angina requiring hypodermic injection of morphine. As the heart continued to show evidence of increasing insufficiency, strophanthus was given, which improved its strength and reduced its irregularity. It was also followed by diuresis, with almost entire disappearance of œdema. But improvement was only temporary, and orthopnœa persisted. Opium, iodide of potassium, and nitrites were given; and latterly also digitalis, but the patient died 3½ months after admission. The lungs were emphysematous and in a state of brown induration; aortic and mitral valves incompetent and atheromatous; aorta much dilated; cirrhotic atrophy of liver and kidneys.

Examples were also given of the use of these remedies in non-valvular disease (*v. infra*).

Byrom Bramwell (*Edinb. Med. Journ.*, May, 1895), in his paper on the same subject, says that in the treatment of cases in which *compensatory changes are satisfactory*, and in which there are no urgent symptoms, it is essential:—(1) To prevent cardiac strain (whether due to external causes as over-exertion, or internal causes as high arterial tension), and to avoid everything which is likely to embarrass the damaged heart and to aggravate or lead to fresh activity in the lesion; (2) To keep the heart-muscle in the highest possible state of health and efficiency, by regulation of functions and of habits of life; (3) To protect the patient carefully against everything which is likely to exert an injurious influence upon the heart—*e.g.* bronchitis and rheumatism. These measures, together with the occasional administration of arsenic, strychnine, and iron, generally suffice. In cases where there is *temporary breakdown of compensation*—*e.g.* from acute bronchitis supervening on chronic mitral disease causing overstrain of right heart—the administration of cardiac tonics may be tried, and in grave cases recourse may be had to venesection. In such cases he has found oxygen inhalations, the subcutaneous injection of strychnine, and the administration of full doses of digitalis or strophanthus of great benefit. In another class where the progressive character of the valvular lesion demands increasing compensation, digitalis and strophanthus are most needed.

## AFFECTIONS OF THE MYOCARDIUM.

**1. Importance of rest in the treatment of cardiac insufficiency.**

**T. B. Fraser** thus concludes his remarks on the remedies employed in cardiac affections, in the debate at the Edinburgh Medico-Chirurgical Society, already referred to:—"I have not discussed many therapeutic measures which are every day usefully adopted in the treatment of heart diseases, such as special measures for increasing the removal of accumulated liquid, both pharmacological and mechanical, venesection, and, in the absence of marked phenomena, of non-compensation, the employment of arsenic, strychnine and graduated physical exercise. In association with these latter measures, and exceeding them all in importance, I would, in conclusion, enforce the importance of *rest*. It is not only a requisite in the more severe, but also in the mildest forms of non-compensated cardiac disease; and it has over and over again come under my observation that, with the simple aid of a regulated dietary, it has been sufficient to remove, not only the cardiac symptoms of mild non-compensation, but also those of more aggravated cardiac insufficiency, including even œdema of a limited part of the body. And by *rest* I also mean the avoidance of the unnecessary exertion of the heart, only too frequently produced by the administration of digitalis, or some other similar substance, whenever a cardiac bruit is detected, and without due regard to the actual requirements of the circulation."

**2. The "Nauheim method" of treatment.**

**W. Bezly Thorne**, to whose advocacy is mainly owing the direction of the attention of the profession in England to the method of treatment of chronic heart affections first carried out at Nauheim by the Drs. Schott, points out (*Brit. Med. Journ.*, March 9, 1895), that the system consists of two methods—that by baths, and that by remedial exercises or movements. As regards the baths, the effect of immersion is to increase the volume and diminish the rate of the pulse, the temperature of the water being from 85° to 90°. In a series of comparative observations on himself, he contrasted the effect of plain (London) water and of mineral (Llangammarch and Nauheim springs) water taken as baths. The Llangammarch well contains 0·09 parts per 1,000 of chloride of barium, 2·7 of chloride of sodium, and 1·2 of chloride of calcium. The water from the Nauheim Spring No. 7, freed from the greater part of the natural carbonic acid, contained nearly 22 per cent. per 1,000 of chloride of sodium, and about 1·7 of chloride of calcium. In each instance the effect of immersion was immediately to diminish

rate, which again rose during the latter part of the immersion ; at the same time the volume of the pulse was increased. The mineral-water baths, however, were succeeded by "a glow of warmth and a sense of exhilaration and invigoration, which, within certain limits, were proportionate in degree and duration to the salinity of the water employed," effects lacking after the plain bath. Applied to the treatment of cardiac dilatation the saline bath has equally marked effect on the respiration and size of the heart. "During the first two or three, or even five or six, minutes of immersion, the breathing becomes oppressed and laboured, and sometimes a sense of constriction is experienced in the epigastric and lower anterior costal regions, while at the same time the area of cardiac dulness diminishes to a degree varying from a third to almost half an inch in the healthy, to an inch or more in the dilated heart, as measured in the oblique transverse diameter. These effects are not transitory. The area of dulness, the force, volume, and rate of the pulse, all show a tendency to return within the following twenty-four hours to the initial standard, but each successive day, with its bath of graduated strength and duration, brings its instalment of gain which leads to a recovery which in some cases is partial, and is happily in many complete. At the same time an enlarged liver may be observed to diminish in vertical measurement, prominence, and sharpness of edge, while sometimes, within the first day, and almost invariably within the first two or three, a free diuresis, which may last in greater or less degree throughout the bathing course and after it, is generally found to have been established." The special form of exercises consisting in movements of limbs and trunk performed by an assistant and resisted by the patient (*Widerstandgymnastik*) has a similar effect on the heart to that produced by the baths—and the combined methods yield therapeutic results surpassing those to be obtained by the action of drugs. (See "Year-Book," 1895, p. 20.) In proffering a physiological explanation of the effects of this treatment, Bezly Thorne shows that the effect of immersion must be to contract the cutaneous vessels and increase the quantity of blood in the muscles, with consequent increased oxidation and production of heat ; the excitation of the skin by the mineral water (to which the Drs. Schott add the effect of free carbonic acid) promotes the reflux to the surface after the immersion—thus further depleting the primarily engorged systemic veins. The muscular exercises, being such as to promote uniform and easy contractions, will tend to dilate the auricles, and thus also divert the blood from the venous system. As to the class of

cardio-vascular affections for which such treatment is appropriate, it is summarised as comprising "those in which therapeutic indications point to the reduction of peripheral resistance ; to the relief of a weakened, incompetent, labouring, dilated heart with or without valvular lesion ; and to the repair of damaged or degenerating cardiac and vascular structures." Bezly Thorne is disposed to agree with Dr. Schott in his recent withdrawal of his reservation in the case of arterio-sclerosis and aneurysm, and adds "that measures calculated at the same time to repair vascular tissue and to reduce peripheral resistance must be pre-eminently suited to meet the exigencies of at least early cases of aneurysm." Referring to his own experience—of eighty-five cases of which he has record—he states that one failed to derive benefit from the exercises, and had no opportunity of making trial of the baths ; two died in the course of treatment—viz. a case of advanced mitral disease, and a case of patent foramen ovale. It may be of interest to quote from his paper the classification he gives of the cases treated :—

"1. Enlargement in persons over fifty, in which the heart sounds were not materially altered, except in cases of extreme anæmia, 24.

"2. Enlargement in persons under fifty, in which the heart sounds were not materially altered, except in cases of extreme anæmia, 20 ; of which 11 appeared to be traceable to influenza.

"3. Enlargement in which the heart sounds were so changed as to suggest valvular lesion, 24 ; in 7 of which the sounds became normal under treatment—namely, 5 which were consequent on influenza and 2 on recent rheumatism.

"4. Enlargement with asthma and emphysema, 5.

"5. Enlargement in cases of chorea, 4 ; 2 of which were slight and 2 well marked.

"6. Cases of marked anæmia in women under forty, 6 ; in 2 of which bruits became inaudible.

"7. Enlargement with cyanosis dependent on patent foramen ovale, 3 (inclusive of Sir P. Smyly's case published in the *Dublin Review of Medical Science*, Sept. 9, 1894).

"8. Enlargement accompanied by dropsical symptoms, 3 ; in 2 of which there was œdema of the lower extremities, and in 1 an extreme degree of general anasarca (Sir P. Smyly's case).

"9. Enlargement with slow intermittent pulse and epileptiform accesses, of eighteen years' standing, following traumatic injury to the heart, 1."

Nor is the relief limited to the regulation of the circulation and the removal of the collateral conditions ascribable to venous



congestion. The blood itself is improved in quality, and the psychological influence is often striking in the removal of the tendency to melancholia which so often exists in these patients—a tendency which, together with enfeebled heart, is a not infrequent sequel of influenza. The system of treatment places no restriction on the ingestion of fluids, which is rather encouraged than otherwise as promoting elimination; whilst the quickened circulation and increased metabolism demand an increase in food supply. It may, however, be necessary to limit the consumption of carbohydrate foods.

W. Allen Sturge, in a "Note on the Treatment of Dilated Heart as Practised at Nauheim by Dr. Schott" (*Brit. Med. Journ.*, March 9, 1895), adds his personal testimony to the value of the baths and massage for this condition, which had supervened after influenza and pneumonia, the pulse being irritable and weak, and never below 100. On arriving at Nauheim the heart's apex beat was about 2 centimetres outside the nipple line. The baths were commenced on June 15, and continued three days out of every four until July 21. The result may be given in Dr. Sturge's own words:—

"The first marked change was in the early morning pulse, which after three baths was, on June 19, 64—a very marked descent in rapidity. The bath pulse (after walking) remained about 100 until towards the end of the treatment; but on July 17 it had come down to 96, and on July 21 to 88. The after-massage pulse (lying down), which on June 20 was still as high as 82, was on June 22 72, and 64 on July 8, at which point it remained stationary. It is worthy of note that, though the massage was vigorously carried out, it produced a slowing and not a quickening of the pulse. The evening pulse (lying down), which varied from 82 to 86 during all the earlier part of the treatment, came down suddenly on July 13 to 72, and rarely much exceeded that rate afterwards. At the end of the treatment Dr. Schott noted that the apex beat was 1 centimetre within the nipple, and the sphygmograph showed a pulse of good average fulness and tension."

He further remarks that, whenever the pulse-rate dropped suddenly, there was a sleepless night with great nervous erethism, which, he thinks, bears out Dr. Schott's explanation that the strong warm brine has a powerful stimulant effect on the cutaneous nerve-endings, which would act as a strong tonic on the nerve-centres. Where the stimulation produced a marked effect on the cardiac centres, as indicated by the sudden change in pulse, the general centres were over-stimulated. The gymnastic

treatment was found to be unsuitable in his case, and was discontinued. He suggests that the muscles, stiffened by previous rheumatism, offered undue resistance to movement, thereby increasing the action of the heart.

### **3. Mode of action and indications of the Nauheim treatment.**

J. F. H. Broadbent (*Practitioner*, May, 1895) gives a detailed description of the treatment carried out at Nauheim. He does not think Dr. Schott's explanation of the mode of action of the warm saline effervescent baths by reflex stimulation of the cardiac nerves and muscle adequate to explain the diminution in the size of the heart in cases of cardiac dilatation. It is probable further that dilatation of the cutaneous vessels lowers the tension of the peripheral circulation and thus gives the heart less to contend against; besides tending to reduce the volume of blood in the left ventricle. The gymnastic exercises consist of slightly resisted movements, which are made slowly and systematically at short intervals. They are flexions, extensions, adductions, abductions, and rotations of each limb in turn, and flexion, extension, and rotation of the trunk. Broadbent suggests (as an alternative to Schott's explanation that the muscular contractions act reflexly on the heart) the relief afforded to the left ventricle in the withdrawal of blood into the muscular system at large, and also the comparative depletion of the venous system.

The *indications and contra-indications* of the treatment are thus given by Broadbent:—

“Cases which are likely to derive most benefit from this treatment are cases of cardiac dilatation due to overwork or mental worry; cases of mitral disease where the right ventricle is beginning to give way and compensation threatens to break down. In cases of adherent pericardium with symptoms of cardiac embarrassment it should be tried.

“Cases of aortic incompetence are unsuitable unless symptoms of right ventricle failure have supervened.

“Cases of aortic aneurysm are unsuitable, as the sudden and frequent changes in the blood pressure can but do harm.

“In cases of true angina pectoris this treatment must be practised, if at all, with the greatest caution. It may be of service in relieving the embarrassment of the heart by vascular dilatation, and thus act like nitrite of amyl or nitro-glycerine; but there is a risk of syncopal attacks, in which a fatal issue may result.

“In cases of fatty heart—that is, fatty infiltration, not fatty degeneration—accompanying general obesity, this treatment

should be beneficial, and is not attended with danger if carefully carried out."

**Sir W. Broadbent** (*ibid.*) appends a note to the preceding paper in which he corroborates the conclusions it contains. The most important factor, in his opinion, is the dilatation of the arterioles and capillaries in the muscles during the resisted movements, diminishing the resistance to the onward movement of blood, relieving left ventricle, whilst the non-compression of veins aids in the transfer of the blood from the venous to the arterial system. Without denying that reflex influence may play some part in the process, since diminished peripheral resistance should increase rather than diminish the frequency of the pulse, his observations have led him to conclude that the primary and principal effect is in the peripheral circulation.

The Schott treatment aims at relieving the overtaxed ventricle, and thus differs in principle from the Oertel treatment, which is intended to obtain compensatory hypertrophy. If the mode of action of the baths and movements be wholly explained by reflex stimulation, exaggerated ideas of their value may be likely to be held. There are no doubt limitations to their use, which will have to be ascertained.

**Saundby** (*Brit. Med. Jour.*, Nov. 2, 1895) in a descriptive account of the treatment, also deals with its rationale, and points out that the pulse-tracings show that the blood pressure is raised and the heart's action slowed. He does not concur in Schott's reflex theory, but admits that the influence of the baths and movements is upon the peripheral circulation; and says:—"The beneficial results of the Schott system depend, in my opinion, upon the very careful and easily regulated method by which the extra work is imposed upon the muscular wall of the heart, which is thereby developed and strengthened, as any other muscle is developed and strengthened, by systematic graduated exercises, and not by any hypothetical reflex nervous effect upon the heart." At the close of his paper he makes the valuable suggestion that in cases of cardiac debility after acute diseases, a course of Schott treatment might precede the less easily regulated strain of walking exercise.

### **5. Fatty and fibroid degeneration of heart.**

**T. R. Fraser** (*loc. cit.*) gives two instances of the improvement produced by strophanthus in cardiac insufficiency due to *fatty degeneration* of the myocardium. The one, a miner aged fifty-seven, had suffered from dyspnoea, debility, and dropsy for four years. The right heart was dilated, the impulse weak, and sounds feeble, without murmurs. The third day after admission he was

put on 5 minims of tinct. *strophanthi* thrice daily. In eight days he could sleep in normal posture and walk without difficulty. Pulse tracings showed the rapid improvement in heart's action. Diuresis was rapidly produced, the daily quantity of urine rising from 33 ozs. before treatment to 260 ozs. on third day, and 232 ozs. on fourth day. The œdema disappeared on twelfth day, and the treatment was discontinued in three weeks. This patient died from pneumonia and nephritis shortly after leaving hospital, and the heart was found to be dilated and flabby, especially on the right side. The other case, a hawker aged sixty-four, suffering from general dropsy, orthopnœa, and cough. At times breathing was of Cheyne-Stokes character. Heart rapid and irregular; no bruit. On night of admission an urgent attack of dyspnœa required immediate recourse to alcoholic stimulants. At same time he was given 5 minims of tinct. *strophanthi* every six hours, continued for forty-eight hours, and then given every eight hours. Heart's action rapidly improved, its rate falling from 144 to 78 on second day, and 56 on fifth day. On sixth day œdema had almost disappeared. Cheyne-Stokes breathing still occurred during sleep, and this, as well as irregularity of heart, still remained when he left hospital. In this case also diuresis was marked.

Fraser also records a case of *fibroid degeneration* of the myocardium in which the administration of *strophanthus* was followed by remarkable improvement in the character of the pulse. In this case as much as 10 minims of the tincture were given every four hours. The pulse before taking the drug was 130, very irregular in rhythm and character; on the second day it had fallen to 98, and had improved in volume, losing its irregularity. The bronchitis and pulmonary œdema, however, increased and proved fatal. There was universal adhesion of pericardium, with extensive fibroid invasion of the myocardium.

Byrom Bramwell (*loc. cit.*) gives examples of the value of arsenic and iron in the fatty degeneration resulting from anæmia, and prefers arsenic and strychnine to direct heart tonics in fatty degeneration due to disease of coronary arteries. "In cases of fatty infiltration and dilated flabby heart, with or without associated mitral regurgitation, careful regulation of the diet and bowels, plenty of fresh air and carefully-regulated exercise, together with arsenic and strychnine," are the remedies he employs. In fibroid disease, besides rest, he finds *digitalis* useful, especially when the blood pressure is low, and pulse small and feeble.

#### **6. Cardiac insufficiency during pyrexia.**

T. R. Fraser (*loc. cit.*) relates two cases of acute pneumonia with feeble, rapid, and irregular cardiac action and low tension

of the pulse, in which *strophanthus* was given. (1) Case of double pneumonia in a labourer aged twenty-nine, non-alcoholic, admitted on fifth day. On seventh day 5 minims of tinct. *strophanthi* every four hours, increased on following day to 8 minims. On second day of treatment pulse had fallen to 94, and become regular; on fourth day, 82, regular and strong, and heart sounds distinct. (2) A man, forty years, alcoholic, on fourth day of double pneumonia. As cardiac action continued to get weaker, *strophanthus* commenced on seventh day of illness, when pulse 140 and dicrotic. On third day of treatment pulse 84, stronger, and had lost dicrotism. He adds:—"I have obtained similar satisfactory results in many other cases of pneumonia, as well as in the pyrexia of phthisis and of pleurisy. In the latter disease I have been in the habit of using *strophanthus* for two objects—in order to restore to normal conditions a weak and dicrotic pulse, and in order to prevent, or at least lessen, the likelihood of recurrence of pleuritic effusions after thoracentesis has been performed, by the stimulation of the kidney action."

### CARDIAC TONICS.

#### **1. The relative advantages of *strophanthus*, *digitalis*, and allied remedies.**

**T. R. Fraser**, at the close of his paper on the "Remedies Employed in Cardiac Affections," to which reference has already been made, points out that there are three conditions in cardiac disease in which one fails to obtain benefit from the use of substances whose "essential action is to increase the contraction of muscular fibre." These conditions are (1) advanced myocardial degeneration, (2) extreme mechanical obstruction to circulation from valve leakage or stenosis, and (3) a combination of the two foregoing—in each case the heart being rendered unable to perform adequate contractions. As regards the special properties of the members of this group of remedies, he writes:—

"So far as experiment has proceeded, *strophanthus* occupies the first position in the action which is produced on the contractile power of the cardiac muscle. It increases the contraction of this muscle with a smaller quantity than any other similarly-acting substance, and with a rapidity unequalled by any of them. Its energy may be appreciated by the statement that when a solution containing 1 part of a dry alcoholic extract in 10,000,000 parts of liquid is perfused through the living heart of a frog, the heart is paralysed in extreme systolic contraction in about fifty minutes, and when the solution is one of 1 part of extract in 5,000,000 parts of liquid, such

extreme contraction of the cardiac muscle is produced that relaxation occurs only with *post-mortem* decomposition. The rapidity of its action finds an explanation in the facts that the active principle is soluble in less than its own weight of water, and that it possesses the diffusibility of a soluble crystalloid. If, in these respects, it be contrasted with *digitalis*, it is found that the latter substance has a relatively complex composition, and that several of its active principles are insoluble in water. When the most active of its soluble principles has the energy of its cardiac action tested by passing a solution through the living heart, it is found to have but little effect in a solution of 1 in 50,000, while even a solution of 1 in 5,000 is not able to exert on the cardiac muscle so strong an influence as a solution of 1 in 10,000,000 of strophanthus extract.

“There is, on the other hand, another aspect of the action of these substances, in which the advantage may lie with *digitalis*. The condition of the circulation is dependent not only upon the contractions of the heart, but also upon the state of the blood-vessels. It has long been known that *digitalis* possesses the power of causing contraction of blood-vessels, and thus of increasing blood-tension. It is not, perhaps, always appreciated that its action in this respect is probably greater than its action on the heart. Its influence on the blood-vessels is due to a direct effect upon them, and is therefore produced even when the blood-vessels are entirely separated from the vascular nerve centres. When contrasted with strophanthus, the most active of the soluble principles of *digitalis* exerts at least fifty times a greater contractile power upon blood-vessels than extract of strophanthus or than strophanthin. While this difference may constitute an advantage in cases where weakness of the circulation is due more to the state of the blood-vessels than to that of the heart, it is not to be overlooked that it may, in the contrary conditions, constitute a disadvantage, by increasing the difficulties to be overcome by an already enfeebled heart. Although it is not within my experience, still it may undoubtedly occur that the relatively feeble action of strophanthus upon blood-vessels may somewhat restrict its usefulness as a diuretic. On this point practical experience alone can supply evidence. The *diuretic action* of heart-remedies of this group cannot be satisfactorily determined by pharmacology. None of them has been clearly shown to possess any diuretic action in health, operating in a definite and constant manner. In disease, their diuretic action chiefly depends on the changes they produce in the circulation of the body and of the kidneys. Any of them



that, besides, exerts a direct action on the excretory structures of the kidneys will be unable to produce diuresis in conditions of the circulation unfavourable to this action. Even those of them that produce diuresis merely by modifying blood-tension may still fail as diuretics in certain derangements of the circulation locally affecting the blood-supply of the kidneys. Unfortunately, it is impossible to determine in patients the condition of the kidney blood supply, and, therefore, there must always occur a certain proportion of failures in the diuretic use of each of these remedies and therefore, also, circumstances which may be regarded as accidental are likely to produce erroneous impressions regarding their relative value as diuretic remedies. . . .

"It is unnecessary to make more than a brief reference to the more commonly used of the other substances which possess this fundamental action of increasing the contraction of the heart-muscle. The more important of them are *caffeïn*, *convallamarin*, *helleboreïn*, *scillitoxin*, and *adonidin*. It may be interesting to remark that when the energy of their action on the heart is determined by perfusion experiments, *strophanthus* extract is found to be eight times more powerful than *adonidin*, *scillitoxin*, and *erythropilëïn*; twenty times more powerful than *helleboreïn*, thirty times more powerful than *convallamarin*, 300 times more powerful than some specimens of *digitalin*, 3,000 times more powerful than others and 30,000 times more powerful than *caffëïn*.

"None of them, however, act so powerfully upon blood-vessels as *digitalin*.

"As to *sparteïn*, it slows the heart rather by weakening its systole, and thus delaying the cardiac contractions, than by increasing the strength of the contractions. Its action is not, therefore, of the same kind as that of *strophanthus* and the other substances that act as it does. It has no direct action on the myocardium, but only on its regulating nerves; and even this can be produced only by large doses. By this regulating action, however, it may prove useful in certain forms of cardiac insufficiency, and may also increase the flow of urine. . . ."

## 2. Cardiac therapeutics.

In the discussion which ensued upon the reading of Professor Fraser's paper at the Medico-Chirurgical Society of Edinburgh, on February 6, 20, and 27, 1895, many interesting practical experiences were related. The debate is fully reported in the *Edinburgh Medical Journal*, April, May, June, 1895.

G. W. Balfour agreed that many cases were suitably treated

by rest and diet alone, and that digitalis was not necessary for all. He considered that pharmacological experiments on animals could not be relied on to afford indications of the action of drugs on man. He had found digitalis far more certain in its results than strophanthus, and pointed out that digitalis formerly was given in much larger doses than is now usual. It had no cumulative action when given in sufficiently small doses, at intervals long enough to allow of the drug being eliminated between the first dose and the next following. One grain every twelve hours was quite enough to ensure tonic action; but if it were needed to contract the heart and produce diuresis, it must be given in much larger doses, so as to have a certain amount of cumulative action: in cases of cardiac dropsy as much as 3 to 5 or 7 grs., or more, every four hours until diuresis set in, or signs of saturation, such as nausea and sickness, which seldom appeared until 30 or 40 grs. had been given, when the administration should be stopped for a day or two. The poisonous effects were more likely to follow small doses for more or less prolonged intervals than the large full doses formerly recommended. Cardiac failure commences from the very onset of valve defects, and tonics should be given early; not always digitalis—strychnine or arsenic was then of greatest use. Digitalis should be freely given when, owing to free regurgitation (mitral or aortic), it was requisite to contract the ventricle and prevent dilatation. When there was also arterial disease, the addition of iodide of potassium quieted the action of the heart and presumably prevented the action of digitalis on the arteries, allowing the blood to pass more readily into the veins. It thus acted similarly to the nitrites, but had a more lasting effect. The efficacy of the iodide in cases of aneurysm was related to its action in dilating arterioles and lessening blood pressure, care being taken not to push it to the extent of causing a rise in the heart's rate. He urged the importance of accuracy in diagnosis before selecting a remedy. [Dr. Balfour, on the third evening of the debate, contributed a paper on "Cardiac Therapeutics," in which his views were more fully set forth. This is published *in extenso* in the *Edinburgh Medical Journal*, June, 1895.]

Sir T. Grainger Stewart had also been more successful with digitalis than strophanthus, but found the latter more effective in extreme cases of heart failure. Cardiac tonics should not be given if any active changes were going on in the valves—*e.g.* ulcerative endocarditis, however feeble the heart-muscle. In such cases he preferred iodide of potassium to quiet the

heart's action and prevent damage to the valve. Otherwise the indication for cardiac tonics was feebleness of heart-muscle, whether there be aortic disease or not. Caffein was a valuable heart tonic. It was often advantageous to combine arsenic, strychnine, and especially iron with the cardiac stimulants. He advocated frequent tapping of the pleura in cases of cardiac failure and hydrothorax with much dyspnoea, and had seen much benefit from the practice.

**J. O. Affleck** was rather in favour of digitalis than strophanthus, but regarded strophanthus as very useful in emergencies and in cases where digitalis disagreed. Rest and diet were important factors in treatment. In dyspnoea, dry-cupping to the back, or moderate bleeding—by leeching, wet-cupping, or venesection—was useful. He referred also to cardiac failure in acute febrile diseases, and deprecated the too liberal use of antipyretics as tending to weaken the heart. Cardiac failure was prone to occur in delirium tremens, probably from the toxic action of alcohol on the cardiac branches of the vagus; and in such cases cardiac tonics might be useful.

**C. E. Underhill** pointed to the importance of prolonged rest in bed in the case of children with early heart troubles; especially rheumatic endocarditis. Where there was cardiac weakness, iron, arsenic, and digitalis may be given. He alluded to weakness of the heart in growing boys and girls about puberty—attributable to mental or physical work—as cases requiring attention. These subjects should be enjoined to avoid athletics. Opium in angina, especially in elderly people, should be avoided if there were renal disease.

**T. R. Ronaldson** referred to cases where, by reducing the blood-pressure—*e.g.* cases of chronic renal disease with secondary heart affection—more relief was obtained than by direct heart tonics. In such a case, nitro-glycerine, by dilating the arteries and lightening the work of the heart, “made all the difference between an uncomfortable and a comfortable existence.” So, also, by regulation of diet, a relief to the labour of the heart may be given.

**T. Moir** spoke of the relief obtained by regular nightly bandaging the legs in cases of commencing anasarca from cardiac feebleness.

**Byrom Bramwell** read a paper to which references are made elsewhere.

**R. Stockman** explained that the effect of a cardiac tonic like strophanthus or digitalis was, in the first instance, to alter the elasticity of the heart-muscle, so that it would take longer to dilate, and contract more thoroughly, thereby increasing blood-

pressure and improving the nutrition of the heart. The diuretic effect ensued on the veins and lymphatics being enabled to absorb effused fluid, the diuresis ceasing as soon as the general dropsy and ascites had been disposed of. The action was the same in each member of the group; and he had seen similar results with *adonis vernalis* and *convallaria*. In young people their action was disappointing; the heart was more plastic, and showed a great tendency to hypertrophy and dilate. Bad results were also obtained in the middle-aged, especially those who were alcoholic or who had atheromatous coronary arteries, and in cases of arrhythmia from impaired nutrition. Rest in bed, without any special cardiac treatment, was often efficacious in cases where there was slight dyspnoea or slight swelling of the ankles. The action of iodide of potassium had been variously interpreted, but he had not found any alterations in pulse-rate rhythm under very large doses of this drug. Possibly its success in aneurysm was limited to syphilitic cases. He had tried barium chloride and spartein with almost negative results. Mercurial treatment was often of great assistance by relieving the portal system and allowing the kidneys to act. Tapping of the pleura for the relief of dyspnoea had the disadvantage of draining away a large amount of albumen. Dilatation of the right ventricle, unlike the left, was not much relieved by heart tonics. He was sceptical as to the wisdom of treatment by graduated exercise and restriction of fluids, for it must excite a damaged heart unduly. The cases most likely to be benefited by this plan were those of general obesity, not those of valvular derangement. Arsenic was said to act by lessening metabolism and the need of oxygen; but iron was only of service when there was distinct anæmia.

W. S. Greenfield remarked that "all were agreed as to the value of agents in different cases, that they needed to graduate and adjust the treatment to the exact condition of the patient, and that, apart from the use of special cardiac tonics, a large number of hygienic, pharmacopœial, and other measures—such as regulated food, rest, and moderate exercise—were useful, and that in many cases no special cardiac agent was required." His experience of iodide of potassium supported Dr. Stockman's remarks. He spoke strongly in favour of *strophanthus*, which he had found to act beneficially in a very large number of cases in which *digitalis* was absolutely a failure. The drawback that it could not be obtained of uniform strength applied also to *digitalis*, which, owing to its cumulative action, was more dangerous. In only one case—the first in which he had prescribed it—did *strophanthus* exhibit any cumulative action. He had given

strophanthus in many different conditions—in all forms of heart disease—and his experience was that by carefully graduating the dose there was almost invariably some beneficial effect. It was of inestimable value in pneumonia. It might be necessary to give it with other remedies, as nitro-glycerine. He mentioned cases apparently hopeless which had been “saved” by strophanthus; and had given the drug in very large doses. “He continued it with, of course, his finger on the pulse, and with constant watching, *increasing* the dose when the heart showed any signs of failure.”

**J. Ritchie** valued rest and diet as therapeutic agencies in heart disease much more than he had done formerly. He agreed with Sir T. Grainger Stewart as to the inadvisability of prescribing heart tonics in acute cases; and said that in acute rheumatism it was sometimes necessary to stop the use of salicylates and alkalies when there was pericardial effusion, or signs of dilatation. In cases of acute valvular disease, cardiac tonics might be given after the acute stage was past, but were not necessary when compensation was established. Whenever there was failure of compensation, and whatever the form of myocardial degeneration, cardiac tonics were useful. In fatty heart, regulation of diet—especially as to fluids—and of exercise was important, digitalis being given with caution. To secure “rest” to the heart, its work may be lessened by (1) diminishing the amount of blood flowing through it, by enforcing bodily rest and restricting fluids in diet; (2) by improving the quality of the blood. Stimulants were only useful in emergency; as a rule cardiac cases did better without alcohol; (3) by reducing the capillary resistance to a minimum, through warmth to surface and attention to excreting functions. The Nauheim method acted as a stimulant to the capillary circulation. The drugs used were of two classes—(1) those which, like strophanthus and digitalis, prolong diastole, and (2), those which dilate capillaries—as the nitrites, potassium iodide, and strychnine. In his experience strophanthus was often not well borne; it was often, even in small doses, followed by gastric symptoms. Digitalis had a more permanent effect. As regards the use of cardiac tonics, when there was arterial sclerosis, his rule was to give them cautiously if heart failure threatened.

**G. A. Gibson** thought discrepancies in views as to the relative merits of strophanthus and digitalis might be explained by variations in the qualities of the drugs, according to the climate and soil where the plants were cultivated. More might have been said about blood-letting, which had often averted imminent death. Exercise and rest must be regulated according to the individual

case. He entered fully into the nature and treatment of cardiac pain (*v. infra*).

Alex. James pointed out the difficulty of obtaining precise indications in any given case of pneumonia of the need for administration of cardiac tonics. There were circumstances where the strength of the heart is better maintained by procuring sleep or keeping the pulse of low tension. The efficacy of a dry diet in heart disease was not because the quantity of blood was lessened by diminution of fluid, but rather that metabolism is favoured, digestion improved, and the weight of the body diminished. He referred to the variable results obtained both from digitalis and strophanthus: "in some cases the one did good and the other harm; in other cases the opposite occurred; in other cases, again, they both seemed to do good; in others, again, neither did good"; and he therefore felt that no law could be formulated for their application.

[It will be seen that this instructive and well-sustained debate was largely concerned with the relative merits of the two best-known cardiac tonics—digitalis and strophanthus. Next to the striking examples adduced by Prof. Fraser of the efficacy of strophanthus in the various conditions of heart-failure must be cited the emphatic testimony of Prof. Greenfield to the superiority of this drug. In the writer's experience digitalis has seldom failed to relieve the condition, nor has he often met with untoward effects from its use. How far divergent experiences are to be explained by the necessarily variable qualities of such drugs and their preparations is a question touched on by more than one speaker; but that strophanthus is notable for its celerity of action, and that it possesses the advantage of not contracting arterioles, was amply proved by Prof. Fraser, and should go far to encourage its use.]

## CARDIAC NEUROSES.

### **1. Principles of treatment in cases of functional affection.**

Byrom Bramwell (*Edinb. Med. Journ.*, May, 1895) sums up the treatment of "neurotic, functional, and curable conditions" of cardiac derangement as essentially aiming: (1) to remove the cause; (2) to correct by appropriate treatment any deranged or abnormal condition which appears to be present in the heart or in any of the other organs; (3) to regulate carefully the whole mode of life of the individual; (4) to reassure the patient as to the functional and curable nature of the condition, and as to the absence of organic disease. He lays great stress on the



importance of such "mental therapeutics" in all forms of disease ; (5) to administer remedies calculated to soothe the irritable heart, and to tone it up when it is in condition—as it often is, more especially in anæmic cases—of irritable weakness.

## **2. Treatment of heart affections due to railway shock.**

**Stanislaus Szuman**, in a paper read before the Thirteenth Congress of Internal Medicine at Munich (*Verhandl. d. Congr. für innere Med.*, 1895), says that very little has been written upon the functional derangement of the heart which is produced by shock, especially that occurring in railway accidents, the first allusion to this subject being by **P. Hood** in a paper contributed to the *Lancet*, Feb., 1875. He relates in some detail the case of a man fifty-one years of age who was seen two and a half years after he had been in a railway collision. In addition to neurasthenia and other symptoms of "railway brain," he had marked irregularity of cardiac rhythm, and believed himself the subject of incurable heart disease. Great improvement followed a system of treatment which involved suggestion, and what has been termed "mental therapeutics," with massage, electricity, and baths. The massage and galvanism were carried out systematically at stated intervals. A comparison is drawn between such cases—which he thinks more numerous than appears—and those of other "ideational affections"—*e.g.* paralysis.

## **3. Cardiac disorder in the insane.**

In the discussion at the Medico-Chirurgical Society of Edinburgh, **Dr. Clouston** referred to the condition of tachycardia in certain cases of mania and melancholia, especially in their early stages, the pulse running up to 100, 130, and 140 per minute. In these cases there was no doubt some irritation from the cortex acting on the cardiac vasomotor centres. He treated such cases with iodide and bromide of potassium and digitalis. Another condition was one of weakness and slowness of heart's action, with œdema and lividity of extremities—cases best treated by cardiac stimulants, as strophanthus and strychnine. He referred also to a form of insanity associated with, and apparently dependent on, weak senile heart with cyanosis, to be treated with appropriate cardiac remedies.

## **4. Sedatives and hypnotics in heart disease.**

**G. W. Balfour** (*Edinb. Med. Journ.*, June, 1895) says that sedatives such as the *bromides* are often of the greatest service in soothing irritable hearts, even in the palpitation of young people. *Morphia* is the chief narcotic, of the greatest service in relieving the pain of angina and the distress of cardiac asthma.

It must, if used at all, be given in a sufficient dose— $\frac{1}{4}$  gr. or  $\frac{1}{2}$  gr., and “even more, if requisite; running every risk for the sake of giving relief to suffering when that is imperatively needed.”

*Paraldehyde* is a good hypnotic, but disagreeable. *Chloralamide* lowers blood pressure and quickens heart-beat, but is a good narcotic, though inferior to *chloralose*, which does not excite the heart nor cause headache or gastric disturbance. *Chloralose* may be given in doses of 4 grs. (in cachet) at bed-time, repeated should the patient wake after only an hour or two's sleep. “*Chloroform* and *chloral* are powerful remedies, not to be recommended except in special circumstances, on account of their powerful anæsthetic properties. But otherwise they are safe enough; they slow the pulse, but do not apparently depress the heart's action. I have given chloroform to many anginous patients, and to some cardiac patients who were actually moribund, with nothing but good effect. *Chloral* has the same danger as chloroform, but is otherwise safe, and may occasionally be of value.”

**J. O. Affleck**, in the discussion when the above paper was read, had previously alluded to the insomnia of heart disease as being not only distressing but hurtful to the heart itself. He had used many sedatives, but his favourite one was equal parts of liq. morphinæ and chloric ether,  $\text{āā}$  ʒss., which gave great relief, whether the lesion were mitral or aortic. *Paraldehyde* also gave good results. **Fraser** expressed approval of Affleck's testimony of the value of morphine and paraldehyde in the treatment of the sleeplessness and pain of aortic disease.

**Byrom Bramwell** (*ib.*, May, 1895) finds the most useful soporifics in cardiac cases to be chloralamide, paraldehyde, and morphia—the last-named being the most reliable, but contra-indicated in cases of pulmonary œdema and bronchitis. *Paraldehyde* is then preferred. *Chloral hydrate* produces too much depression.

## ANGINA PECTORIS.

### 1. Value of the nitrites and iodide of potassium in angina.

**Fraser** (*loc. cit.*) considers that in cardiac angina, where compensation is fairly maintained, opium is the best remedy. In many cases, nitro-glycerine and the nitrites are of great value, especially where there is also bronchial spasm. Although their efficacy has been attributed to rapid dilatation of blood-vessels, he had met with angina with low tension pulse, and seen the nitrites succeed where no effect was produced by them on tension, and fail when high tension was greatly reduced by them. As to

iodide of potassium, it produced good effects in certain cases without any material modification of the circulation. Possibly, they were cases of fibroid disease. In the course of his reply on the whole debate, Fraser reverted to this subject, and affirmed that the nitrite of sodium was one of the most valuable of the nitrite group. It did not so readily produce headache as nitro-glycerine, and in proper dose ( $\frac{1}{2}$  to 2 grains) a continuous effect could be maintained. The action of all the members of the group, however, became less after several administrations, and therefore subsequent doses must be increased.

## **2. The treatment of cardiac pain.**

G. A. Gibson (*loc. cit.*), in the course of the Edinburgh debate, said that no line could be drawn between what is called *cardialgia* and true *angina pectoris*. Angina indicated cardiac failure of some sort, and the various forms of cardiac pain were more common in degenerative than rheumatic conditions, the coronary arteries being involved, causing a condition of *ischæmia* of the cardiac muscle, as well as of structural change. To relieve the pain it was necessary to raise the nutrition of the whole circulatory apparatus, and primarily that of the heart. Among drugs the iodides were far the best, much greater relief being obtained by their continuous use than by any other drugs. For rapid relief of anginal pain, iodide of ethyl was more effective than nitrite of amyl. Nitro-glycerine, or nitrite of sodium, might be given when a prolonged effect was desired. Opium was a "sheet-anchor in painful cases in old people," and its use involved no risk with proper care. Alkalies and colchicum were of use in anginous attacks of gouty people. Incipient degeneration might be averted by the free use of distilled water as a drink.

## **GRAVES'S DISEASE.**

### **Treatment of Graves's disease by thymus gland feeding.**

David Owen (*Brit. Med. Journ.*, Feb. 16, 1895) reports the sequel to a case of exophthalmic goitre (*ibid.*, Dec. 2, 1893), for which he had prescribed thyroid feeding with apparent good result—the patient being restored to health after two months' treatment. His attention having been directed by Dr. Hector Mackenzie to the practical impossibility of the patient having, as stated in the report, on two occasions consumed a quarter of a pound of sheep's thyroid, which would have been equivalent to about twenty of these organs, Mr. Owen made inquiries, and found that the butcher had all the time been supplying thymus

gland. In January, 1894, the thymus was discontinued, and the patient after a time had a return of palpitation, rapid pulse, and of swelling of thyroid. Accordingly, about three months later, the thymus feeding was again commenced, and in July the patient presented "very remarkable improvement." He had been able to work twelve hours a day, had gained flesh, was free from palpitation and fatigue, and pulse-rate had fallen from 120 to 72. The proptosis had gone, and thyroid enlargement had disappeared. He had been taking one lobe of the cervical thymus three or four times a week, with occasional intervals of its discontinuance, always, however, followed by a return of symptoms, which disappeared on resuming the remedy. It is suggested that there is probably antagonism between the action of thymus and thyroid.

Mikulicz (*Berliner klin. Wochensch.*, No. 16, 1895) has also noted marked amelioration of some of the symptoms, including the exophthalmos, in a case of Basedow's disease from thymus feeding, but without appreciable reduction of the goitre, which had existed for seventeen years.

[The writer has at present (Nov., 1895) in the Middlesex Hospital a case of Graves's disease of moderate severity, in which "thymus tabloids" have been prescribed with some benefit.]

# DISEASES OF THE LUNGS AND ORGANS OF RESPIRATION.

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THE following order will be observed in the consideration of the various modes of treatment of the diseases of the lungs and organs of respiration, to which prominence has been given during the past year :—

- I.—Asthma and bronchitis.
- II.—Pneumonia.
- III.—Pulmonary tuberculosis.
  - 1. Hygienic and constitutional treatment.
  - 2. Treatment by special remedies.
  - 3. Treatment of special symptoms.
- IV.—Diseases of the pleura.

## I.—ASTHMA AND BRONCHITIS.

Chaplin communicated to the Hunterian Society (*Brit. Med. Journ.*, 1894, ii. 1177; and 1895, i. 1371) a paper on the treatment of foetid expectoration by inhalations of commercial coal tar creasote vapour. As he had found the usual method of inhalation inefficient, he had been treating foetid expectoration by confining the patient for an hour every day in an atmosphere of the vapour of common commercial tar creasote. The cases most suitable for this treatment were those of bronchiectasis. The method of application of the vapour consisted in placing the patient in a chamber about seven feet square, fairly air-tight, in the centre of which was a dish containing the creasote. This dish was heated, and the fumes quickly filled the chamber. The vapour was thus enabled to reach the dilated bronchus; and by its irritating and antiseptic properties it caused expulsion of the retained secretion, and rendered the dilated bronchus aseptic. The inhalations were continued daily for six weeks or more; and

their effect in six cases was to render the sputum more or less free from odour ; in two the smell was completely removed, and had not returned after a lapse of two months ; while in two others an inhalation had to be used once or twice a week, by which means the foetor was controlled. The method was easy of application, and inexpensive. No case could be considered as perfectly cured, but even temporary benefit was well worth the trouble incurred. Poisoning by the creasote was practically impossible. The inhalations had no effect on phthisis.

In the discussion which ensued, **Kington Fyffe** stated that he had found not only diplococci, but putrefactive bacteria in the foetid pus ; and guinea-pigs injected with the secretions died ; whereas after the creasote inhalations no putrefactive bacteria were to be discovered, and guinea-pigs now injected did not die.

**E. Markham Skerritt** (*Practitioner*, April, 1895, p. 318) calls attention to the value of caffein in diseases of the respiratory organs, and especially in asthma and other conditions in which the element of spasm exists. The influence of caffein in affections of the bronchial tubes and lungs is exerted in two ways : directly, in producing relaxation of spasm ; and indirectly, in aiding the heart. Attention is here specially directed to the former of these.

Caffein has long held the first place in the writer's practice in the treatment of the paroxysm of spasmodic asthma. Success does not always attend its use, but its failures are perhaps fewer than those of any other remedy ; and it has repeatedly given relief when other drugs and "specifics" have failed. As with other remedies in asthma, no absolute rule can be laid down with regard to the class of cases in which caffein will be successful, or the reverse ; but it seems to act with more certainty in adults than in children. Good is also more likely to result when there is an absence of sources of peripheral irritation, such as the existence of dyspepsia or of nasal polypi ; but here again no definite line can be drawn, as the relief afforded by caffein in some cases of digestive asthma is marked. Benefit is often most marked in patients whose paroxysm commences usually in the early morning, waking them from sleep. The average adult dose is 5 grains. When a paroxysm of asthma is present, this dose is ordered every four hours until the bronchial spasm is relieved ; after which the remedy may be taken at longer intervals, to avert any tendency to relapse. When the attack comes on fairly regularly in the early morning, a dose of 5 or 10 grains at bedtime often averts the paroxysm, or at all events renders it so slight that the patient can sleep through it, and wakes in the morning with some sensation of tightness in the



chest, which is removed by a further dose or two ; but if the attack wakes the patient in spite of the evening dose, he takes 5 grains immediately, and again at hourly or longer intervals, as may be required. The influence of caffein in relieving spasm is not limited to asthma, but is also exerted in any morbid condition in which muscular contraction of the bronchial tubes is a factor ; and it is proportionate to the amount of such spasm present in any given case. Thus in acute bronchitis, and in chronic bronchitis and emphysema, an element of true spasm often exists ; and upon this caffein will be found to exercise a beneficial influence, allowing of greater freedom in the passage of air, and thus relieving dyspnœa.

Brief reference is made to the conditions in which caffein acts indirectly upon the respiratory organs by its influence upon the heart. The drug is a cardiac tonic and stimulant, acting on the medulla and heart centres, in moderate doses strengthening the cardiac contractions and raising the pulse-rate and the blood-pressure. It is often of much service in acute respiratory affections where heart-failure threatens, as in pneumonia and capillary bronchitis ; and it has been especially praised by various observers in the former disease. It is also well spoken of in atelectatic and hypostatic conditions of lung. It is obvious that its action as a heart tonic, as well as a relaxer of spasm, makes it doubly useful in many morbid respiratory conditions ; and it undoubtedly gains additional value by its influence as a general stimulant to nerve-centres. This is exemplified by the action of guarana and kola nut, which contain the alkaloid as their active principle ; and is familiar to all when caffein is taken in the form of tea and coffee.

In therapeutic doses a peculiar wakefulness is sometimes produced, with increased mental activity—an exaggeration of the effect of strong tea or coffee on some persons. There is no cumulative action. The writer has never met with any ill-effects from caffein, except that quite occasionally wakefulness is caused, which is described as pleasant, the patient being very wide awake and mentally active, and free from disagreeable sensations. As a rule patients go to sleep without difficulty after their nightly dose of 5 or 10 grains. And no evil effect has been noted in the case of those who have taken caffein for long periods together, sometimes extending over years.

## II.—PNEUMONIA.

The application of heat in the treatment of acute pneumonia is highly spoken of by C. W. Ingraham (*New York Med. Journ.*,

1895, i. 617). He illustrates by a mechanical example the effect on the blood-pressure of the practical removal from the circulation of one lobe of the lung, that is, roughly, one-fifth of the pulmonary capacity, by its consolidation; and points out that in pneumonia we must dilate the blood-vessels of the healthy portion of the lungs to accommodate the extra 20 per cent. of blood which has to circulate through the lungs so as to maintain the equilibrium of the circulation, to supply the system with oxygen, and to relieve it of the poisonous products of respiration. How is the tension in the pulmonary vessels to be reduced sufficiently to relieve the heart appreciably? Practically only by the application of heat. Heat is a powerful stimulant and anti-spasmodic, it relieves pain, induces perspiration, is an antipyretic (if used early in the disease so as to obtain its full physiological effect), it controls the disease and prevents its spread, and it is a powerful and reliable cardiac stimulant. In fine, if the author had to choose between heat and all other remedies, he would choose the former; but to apply heat properly in pneumonia, a high temperature should be maintained continuously. The poultice is worse than useless. The author's special apparatus consists of an adjustable flannel jacket which covers the thorax anteriorly and posteriorly. In this is placed rubber tubing, coiled and arranged about an inch apart, and attached to the jacket so as completely to cover the thorax. The patient lies upon the tubing with perfect ease, without interfering with its working. A feed tube is attached to a small reservoir of hot water, the heat of which is maintained by a lamp or gas-burner. The reservoir is placed several feet higher than the patient, and the hot water circulates through the tubing, and is discharged into a vessel below. The heat in the supply tank is kept constant; only a slight cooling of the water occurs in its flow. When the coils are once full, the water should only drop into the discharge tank. Stopcocks at the reservoir and at the end of the discharge tube regulate the flow. The tubing can be removed from the jacket for cleansing. After treating a considerable number of cases of pneumonia, and a variety of less dangerous acute diseases of the lungs, the author has yet to see the patient who did not receive the most marked benefit from the apparatus. Respiration becomes deeper, less laboured, and markedly slower. The high degree of heat so generally applied acts upon the entire surface of the lungs, and enlarges the calibre of the uninvolved portion, thus allowing of the reception at a normal tension of the blood which would in the healthy state go to the consolidated area.

Arterial tension is thus relieved, and a greater area of blood is exposed to the air-cells; the heart is relieved, and a normal interchange of oxygen and carbonic acid is encouraged. In six hours the respirations have diminished one-third in number, with a corresponding lessening of temperature and pulse-rate. When a large amount of surface fat retards the action of heat, an abdominal appliance may be attached to the jacket; and this would also be used if the patient were a chronic inebriate, or had degenerate vessels from any cause. The "pneumonia jacket" is easily adjusted and regulated, and is practically automatic, and the patient is not disturbed as when heat is applied in the usual ways. With regard to other measures, the bowels should be at once relieved by a 5-grain dose of calomel; severe pleuritic pain may be eased at once by morphia injections, and kept under by opium; a glass of milk should be given every hour, day and night, and some form of beef juice or peptonoid, the equivalent of three pounds of beef daily. No cardiac stimulant should be given until it is plainly indicated, and it should then be administered to the physiological limit. The only inhalation of value is that of oxygen, which is often most useful if given in time. All antipyretics are harmful.

P. Blaikie Smith (*Brit. Med. Journ.*, 1895, i. 1029) reports five cases of acute pneumonia, treated, on a principle diametrically opposed to that of Ingraham, by ice cradling. After referring to W. S. Fenwick's series of 108 cases treated by sponging or ice cradling, with a mortality of only 10 per cent., he describes the mode of applying the treatment. The patient, in a cotton nightdress, is placed in bed with a sheet covering the mattress. Extending from the shoulders to the feet are placed two large cradles. To the arches of these are attached six or eight small pails filled with ice; a thermometer is suspended from the centre of the upper cradle, and both cradles are covered first with a blanket, next with a waterproof, and lastly with the ordinary coverlet. The pails are recharged as the ice melts. By this means the bed temperature in one case, which before was 88° F., was kept between 60° and 70° F., and in another instance between 65° and 74° F. instead of 87°. No definite improvement could be noted as a result of this method of treatment, though there was some reason to think that it had a restraining influence upon the temperature, as also upon the pulse and the respiration. The patients as a rule felt comfortable under the treatment. One or two, however, complained of cold feet, and stockings were allowed them. In one case, where inordinate perspiration was a marked feature, this

symptom at once disappeared with the establishment of the ice cradling. Subject to further experience of its effects, ice cradling may be recommended as a mild form of antipyretic treatment, easy of application, comfortable and not fatiguing to the patient, and capable of being carried out where a restraining influence on pyrexia and its attendant symptoms is desired.

Theodore Fisher (*Brit. Med. Jour.*, 1895, i. 50) advises caution in the use of antipyretics in pneumonia; and quotes a case to prove that in this disease the serious symptoms are due to the cause of the pyrexia, and not to the pyrexia itself. A man aged twenty-eight was ordered 3 grains of phenacetin, on the sixth day of his illness, for a temperature above 104° F. During the next sixteen hours the temperature fell to 97°, and towards the end of that time the patient became noisily delirious, with an irregular pulse. The delirium continued as the temperature rose again, but disappeared as it fell next day at the onset of the crisis. If delirium and irregular pulse can exist with a temperature of 97° F., obviously pyrexia and serious symptoms are not synonymous terms. The toxins that cause cerebral disturbance and cardiac weakness also give rise to fever; but apart from it they can injuriously affect the centres of vital activity. A fatal ending is not due to the raised temperature. Any patient previously in good health could withstand for seven or eight days a temperature between 102° and 105°. Neither is it due to the cutting off of a large breathing area, since in most instances as soon as the crisis occurs the patient is out of danger, in spite of the fact that for several days the affected portion of lung remains as useless as before. Death is due chiefly to the action of toxins upon the heart. The cyanosis of the later stages of pneumonia does not in the main indicate the injurious effect of lung consolidation upon the pulmonary circulation; it points rather to cardiac failure, due to the action of poisons upon the heart-muscle. Very shortly after these toxins cease to be produced the heart recovers sufficient strength to force the blood through the unaffected lung tissue rapidly enough to secure average oxygenation, and the cyanosis disappears. We must, therefore, be careful not to run the risk of lessening the patient's powers of resistance to the disease by the administration of powerful drugs.

Naegeli-Akerblom (*Centralb. f. inn. Med.*, August 10, 1895) advocates the treatment of pneumonia by digitalis. He cites the mortality in Petrescu's 1,192 cases of 1·2 to 2·6 per cent. in healthy young soldiers; and Massini's 475 instances in less favourable patients with a mortality of 11 per cent. In sixty-four cases treated by the author, eleven died, or a mortality of 17·18

per cent. In forty cases under the age of fifty, the only two deaths occurred in cases complicated by phthisis. Of the nine remaining fatal cases, seven were hopeless from the outset, and two were over seventy. He holds that the digitalis regulates the pulmonary circulation, no antipyretic effect being looked for; and argues that the good result is due to the increase in leucocytes produced, as his experiments have shown that the drug causes hyperleucocytosis both in animals and in man. He regards digitalis as the most useful remedy in pneumonia, but says that hydrotherapeutic measures should be combined with its administration where practicable, on account of their effect on leucocytosis.

These remarkable results have not, however, passed unchallenged (*Therapeutic Gazette*, 1895, p. 36). Loewenthal reports twelve cases, all of which recovered; but depression and exhaustion rather increased than diminished under treatment, while stupor and other cerebral symptoms were not influenced. The turgidity of the face disappeared, and was replaced by pallor with cold extremities, while the cough and sputum remained as before. Physical examination revealed no alteration in the course of the disease, in two cases previously intact lobes being affected after the patients were fully under the influence of the drug. The course of the fever was only slightly affected, but after the temperature fell it remained subnormal for several days. Before the crisis the pulse-rate was only slightly affected; but after it, it fell decidedly, and often became very irregular, and remained so for two or three weeks. The blood-pressure also remained below normal. In three cases the slow pulse was followed by a rapid one, which was thready, irregular, and intermittent. Convalescence seemed retarded, the picture being that of a marked and rather prolonged collapse. Renier's experience in twenty-four cases was much like that of Loewenthal. He was unable to see that the drug had any influence upon the disease, except, perhaps, in prolonging resolution; while symptoms of poisoning occurred ten times. In one case, after digitalis had been given in doses of four grammes for three days, alarming symptoms of collapse came on, and lasted for six days—cyanosis, swollen face, vomiting, small and intermittent pulse, cold sweat, uninterrupted hiccough, and stupor. The occurrence of collapse as the result of treatment whose special object is its prevention should act as a warning against the routine use of these large doses of digitalis in pneumonia.

Bollinger (*Münch. med. Woch.*, August 6, 1895) states that death in acute pneumonia is usually attributed to (1) inefficiency

of the lungs owing to extensive consolidation ; (2) severity of the symptoms, as in septic forms of pneumonia ; (3) complications, such as meningitis, pericarditis, etc. ; (4) heart failure, which may be due to inherent weakness in the heart, or be brought about by the pneumonic infection. Individual resistance is also an important factor. The author draws attention to two facts noted after death from acute pneumonia : the general anæmia of all organs, and the absence of so-called collateral hyperæmia in parts of the lungs unaffected by the pneumonic process. He attributes this to the extensive exudation, which robs the blood of its most important elements. The results of this exudation are practically similar to those produced by the recurrent internal hæmorrhage noted in some of the infections. The leucocytosis in acute pneumonia is a regenerative process to compensate for the loss of the blood occasioned by the exudation. Thus the author thinks that the critical collapse manifestations in croupous pneumonia, and the fatal cardiac insufficiency, are due to the oligæmia which leads to an inadequate nutrition of the heart-muscle. Finally, he draws attention to the harm done by blood-letting. Fluid should be administered by all possible methods—perhaps even the infusion of saline solution should be adopted to compensate for the oligæmia.

In the treatment of broncho-pneumonia **Nothnagel** (*American Journal of the Medical Sciences*, 1895, i. 454) says the auxiliary muscles of respiration must be acted upon in order to avoid asphyxia, cyanosis, and carbon dioxide poisoning. For this purpose water baths or Priessnitz's wet cloths are used. The patient is placed in a bath, and a spray of cold water is directed against the thorax, or the ordinary douche will serve the same purpose. To avoid venous stagnation, the position of the patient should be changed every hour, and he should not remain long on his back. He should also be got to make four or five deep inspirations every half-hour. Drugs are given with the object of removing the secretions by expectoration. Inhalations are useless, and ammonium chloride, sodium chloride, and turpentine oil are no better. A few expectorants may suit special cases, as decoction of senega and ammonium chloride. Narcotics, such as belladonna and hyoscyamus, to relieve cough, weaken the patient, and are avoided at the present day. Codeine, in double the dose of morphia, has been much lauded as a remedy for cough. If the latter be severe, morphia with laurel water may be given in small quantities ; the latter alone does not give relief. Morphia may be used with benefit in some so-called dry coughs, those produced by hyperæsthesia of the vagus branches in



the lung. For tenacious secretions the stimulating expectorants, such as benzoic acid and senega, are indicated.

The value of oxygen in the catarrhal pneumonia of children is attested by J. P. Philip (*Brit. Med. Journ.*, 1895, i. 1036), as illustrated in the case of a boy of thirteen months, in whom marked cyanosis developed, with a tendency to heart failure. When the gas was first administered the child was collapsed and sinking, and improvement was soon manifested in the character of the pulse and respirations. The oxygen was at first used freely, and then at intervals when collapse again threatened; and the child ultimately made a good recovery. Philip is convinced that death would have occurred had it not been for the oxygen.

### III.—PULMONARY TUBERCULOSIS.

#### 1. Hygienic and constitutional treatment.

In discussing the modern treatment of pulmonary phthisis, C. T. Williams (*Lancet*, 1894, ii. 1021) points out that Koch's discovery of the bacillus, though it has largely assisted diagnosis, cannot be said to have contributed much to treatment. It was the signal for an enthusiastic outburst of antiseptic and bacillicide measures. The unhappy phthisical patient was muzzled with antiseptic respirators, surrounded by antiseptic atmospheres, and had to submit to what Darenberg terms "orgies of creasote and guaiacol." Antiseptics were injected hypodermically and administered *per rectum*, and all efforts short of destroying the patient were directed to the slaughter of the bacillus. Many of the antiseptics used have not even been proved to be fatal to the bacillus. But it is one thing to arrest the development of this bacillus in the test-tube or on the cultivation plate, and another to attack it in the human body, where, except on a few surfaces, it is out of direct reach. But supposing all the bacilli then present to be destroyed, what is to prevent the entrance of other tubercle bacilli upon the soil already proved to be vulnerable? There is nowadays much discussion on the contagious nature of phthisis, and the possibility of preventing much of the disease by notification and isolation; but while it is our duty to disinfect and destroy the sputum and other secretions which are sources of danger, any complete system of isolation would be impossible in so common a malady, and, moreover, as the evidence for its necessity is very weak indeed, would be uncalled-for and cruel. One lesson to be learnt from the failure of Koch's tuberculin is that any treatment which promotes not conservative but destructive changes in the lung, cannot

be other than detrimental to the patient, as the area of infection is thereby widened ; and another lesson is that certain morbid poisons have a distinct affinity for certain organs, and appear to select old lesions in those organs.

Now, all these specific modes of treatment ignore the greatest factor of all—the resisting power of the organism to disease ; and it is to this that the physician should lend his aid. For if his means are effectual he can ward off disease ; or if the patient is already attacked, he can limit its inroads, and possibly arrest it altogether. A glance at the history of the treatment of phthisis will show that whatever success has been attained has been achieved by fortifying treatment, whether by diet, climate, or medicines, and not by specifics so-called. Life in the pure air, judicious exercise, a light nourishing dietary, and such aids as cod-liver oil and tonics, have effected more than all the bacillicide treatment put together. But these all act on the old principle of helping Nature to help herself, and reducing the vulnerability of the patient. The brilliant researches of **Metchnikoff** upon the functions of the “phagocytes” have thrown much light upon the weapons of resistance which Nature possesses for dealing with invaders like the tubercle bacillus. Another destroyer of bacilli is the serum of certain animals, such as the rabbit ; though the evidence of this bactericidal action is by no means so complete as that of phagocytosis. And a third method of destruction of the tubercle bacilli is to be seen in the process of fibrosis so largely present in chronic phthisis. In a lung from a case of fibroid phthisis there generally exists a dense fibroid tissue where all alveolar structure has disappeared, enclosing a few caseous nodules in which some bacilli may possibly be found ; but the fibroid tissue may be searched through and through, and always with a negative result. The striking way in which the bacilli will disappear after fibrosis has affected the walls of a cavity has often-been noted, and the only conclusion seems to be that fibrosis is incompatible with bacillary life.

Such are the weapons used by nature to fight against the tubercle bacillus. In a well-organised, well-developed, and therefore well-protected individual, the bacilli are overwhelmed by phagocytes at the point of entry, and immunity is the result. In one of less defensive power they may enter, and be carried along by the lymphatics to the lymphatic glands, where they undergo digestion and destruction ; for **Hankin's** researches have shown these glands to have distinctly bactericidal properties. When, however, the tubercle bacilli gain an entrance and destroy the tissues, as in the case of the lung, the most that can be hoped

for is either that their progress may be obstructed by fibrous growth; or that, through developing and expanding the healthy lung in the neighbourhood, pressure may be brought to bear on the diseased portion, inducing a drying process incompatible with bacillary life. This process is encouraged at high altitudes.

It would therefore seem that the problem of treatment resolves itself chiefly into means to increase the number and activity of the phagocytes, and thus render more probable the destruction of the bacilli. The same measures would also improve and enrich the blood and lymph serum. While the use of purely bactericidal agents is not urged, partly on account of their insufficiency and partly because they sometimes injure the patient, the latter should be surrounded by those natural agencies which have been shown to be highly unfavourable to bacterial life—sunlight and fresh air. For **Ransome** and **Delépine** have shown that the virulence of the tubercle bacillus was reduced by exposure to these, and was rapidly lost. To promote the formation of lymph and of blood rich in leucocytes, all experience teaches that the surest method is to administer a large amount of oleaginous food under conditions favourable to its absorption and assimilation; and cod-liver oil is pre-eminent, on account of its penetrative power and the ease with which it forms with pancreatic juice a rich emulsion capable of absorption. When patients with no other advantage hold their own by the help of cod-liver oil, its value must be admitted. No substitute for the oil is at all comparable to it. Milk should be an important element in the diet. But the most important factor in treatment is pure air, especially with sunshine. In England the much more systematic exposure to fresh air in vogue at Davos, St. Moritz, and Falkenstein might be imitated with advantage; and judicious exercise should be combined with it, unless great pyrexia is present.

The following remarks on treatment are founded on the experience of thirty years. Cough should always be treated by promoting expectoration, one of the best forms of expectorant being the effervescing carbonate of ammonia draught night and morning, which will generally clear the bronchial tubes for several hours. If there is much fruitless hacking before expectoration, the addition of a few drops of dilute hydrocyanic acid and half a drachm of syrup of poppy or codeia will, without harm, allay the irritation. Where the cavities are large, or deep, or basic, and consequently require great effort to clear, sal volatile with spirit of ether and camphor-water answer admirably; while for old people champagne will often serve the same purpose.

But the best way to reduce the cough of chronic phthisis is by counter-irritation to the chest wall—most effectually by blistering. Relief will be proportionate to the amount of serum thus drawn off. Night-sweats should be checked by arseniate of iron,  $\frac{1}{6}$  gr. to  $\frac{1}{3}$  gr. at bedtime; or picrotoxin,  $\frac{1}{60}$  gr. to  $\frac{1}{30}$  gr.; or nitrate of pilocarpine,  $\frac{1}{20}$  gr.; or oxide of zinc in from 3 to 5 grain doses. Belladonna and atropine are less satisfactory, on account of the dryness of mouth and throat and disturbance of eye often produced. The treatment of pyrexia by drugs is unsatisfactory—quinine in small doses before or during the rise, or Henn's pill twice a day, being best. But the great object is to keep the patient lying quiet—if possible, in the open air—to feed him frequently, and to supply alcohol if required. The diarrhoea of limited ulceration may be checked by sulphate of copper and opium; but if the ulceration is extensive, and implicates the ileum and the large intestine, injections are best. The enema opii (B. P.) is excellent; but a few most obstinate cases have yielded to large injections of linseed tea, which has a most soothing influence on the ulcers.

New York would appear to be far in advance of all other cities in its arrangements for the sanitary supervision of tuberculosis. H. M. Biggs and J. H. Huddleston give (*American Journal of Medical Sciences*, 1895, i. 17) an interesting account of the regulations of the New York City Board of Health bearing upon this disease. In 1889 the Board passed a resolution calling upon the pathologists of the Department for a report on the causation and prevention of pulmonary tuberculosis; but the medical profession in general did not support any action designed to limit the spread of the disease. Leaflets, however, were distributed giving the facts known regarding the communicability of tuberculosis; and this action of the Board in 1889 is believed to be the first movement officially taken by any municipal body towards the formal supervision of this malady. In 1893 the Board adopted a report of H. M. Biggs, recommending: (1) That the knowledge be systematically disseminated that every tuberculous person may be a source of danger, and his own chances of recovery may be diminished if the discharges from the lungs are not properly dealt with. (2) That all public institutions be required to transmit to the Board of Health the names and addresses of all persons suffering from phthisis within seven days of their coming under observation. (3) That special inspectors shall visit families or premises where tuberculosis exists or has recently existed, deliver proper circulars, give information, and secure such disinfection as each case may require. (4) Hospital

authorities are urged to treat pulmonary tuberculosis in special wards separate from other cases. (5) That the Department of Charities and Correction be urged to provide a special "consumption hospital" for the reception, as far as possible, of all cases from other hospitals. (6) That the Department undertake the diagnostic examination of the sputum when required. (7) That medical men be requested to notify all cases of pulmonary tuberculosis. (8) That inspectors visit all premises vacated by the death or removal of consumptives, give directions as to disinfection of infected articles, and make recommendations as to the renovation of the premises. Thereupon the Board shall issue an order upon the owner notifying him that it will not allow the premises to be occupied by any other persons than those living there at the time until the order has been complied with; a placard to this effect to be placed upon the door of the apartment.

A circular of information for consumptives was also printed in English, German, Hebrew, and Italian, for distribution amongst all reported cases except those under the care of private physicians; and a circular to physicians was also prepared asking their co-operation.

A register of reported cases was begun on March 1st, 1894, and up to November 1st, 3,252 cases had been reported. A register of deaths was also commenced, and within the same period 3,316 names were entered. The records of living cases and of deaths are preserved in two card indices—one an alphabetical name index, and the other a street index. Dead cases are entered on blue cards, and living on pink. The cards contain the name, address, age, sex, and occupation of the individual; and in living cases also the institution from which reported, with date, and in dead cases the date of death. All cases are finally placed on a series of maps embracing the whole of Manhattan Island, 110 in number, and drawn to the scale of one hundred feet to the inch. This is large enough to show any house-lot in the city. The maps are so arranged as to represent the sanitary districts of the census of 1890, which are supposed each to contain a more or less homogeneous population. Signs are used on the maps to indicate the date of report, and whether the case is living or dead. It is believed that such a systematic study of the history of infected spots as can eventually be made from these maps can hardly fail to aid greatly in the knowledge of the methods of extension of tuberculosis and the measures required for its repression.

When a patient has been removed—alive or dead—from any

premises, the inspector usually recommends the following routine treatment of rooms, which is enforced by the Board:—Kalsomined or whitewashed walls or ceilings to be washed with a solution of washing-soda (half a pound to three gallons of hot water), and then kalsomined or whitewashed again; paper walls or ceilings to be similarly washed and repapered; woodwork to be scrubbed with the same solution and repainted. It is to be noted that renovation rather than disinfection is required, as the latter involves the use of materials and methods which are not universally familiar, and also often leaves the place in an undesirable condition. Soda is used because it is efficient, familiarly known, easily obtained, and inexpensive, and will be used freely where more expensive and unfamiliar disinfectants would not be employed. The household goods are also, as far as possible, disinfected at the city station.

For the examination of the sputum, jars are supplied by the Department at various centres, with full directions, and are collected from these depôts daily. A report is sent to the physician in charge of any case the following day.

Certain difficulties have been met with in the prosecution of the work above outlined. These mainly relate to the obtaining of full registration of cases of tuberculosis. As yet, physicians do not generally report their cases, and therefore the institutions furnish most of the reports, and these are sometimes very inaccurate. The addresses supplied need revision; patients often intentionally give them wrong. In death certificates, further, pneumonia and chronic bronchitis are given as the cause, to conceal cases of tuberculosis. The importance of this factor is increased through the widespread influence of the industrial insurance companies, many of whose policies are invalidated wholly or in part in the case of death from this disease. Attempts to influence the statements on the death certificates are therefore common; and the remark, "Well, doctor, if I don't get the insurance I can't pay your bill," may sometimes have weight. An investigation is now made of every case of death from disease of the respiratory organs other than tuberculosis; and if the patient has previously been reported as suffering from the latter complaint, the physician is called upon to explain the discrepancy.

The authors look forward to the establishment of hospitals for advanced cases and sanatoria outside New York for the care of incipient cases, to provision for inspection of factories, shops, and other places where phthisical patients may be found, and to enforcement of sanitary measures in these places and in all places of public assembly, and in the means of public conveyance.

**S. Delépine** and **A. Ransome** present to the Scientific Grants Committee of the British Medical Association (*Brit. Med. Journ.*, 1895, i. 349) a final report on the disinfection of tubercle-infected houses (see the "Year-Book of Treatment" for 1895, p. 53), in which they draw the following conclusions :—

(1) The disinfection of rooms which have been contaminated with tuberculous products cannot be obtained by the fumigation methods generally used. Sulphurous acid, chlorine, and eu-chlorine, as used under supervision by experienced municipal disinfectors, have proved practically useless. This only confirms the results obtained by Koch and his pupils in the case of a number of other organisms.

(2) The only method of disinfection which seems to promise more satisfactory results is the direct application of chlorinated lime to the walls to be disinfected. This method has so far given satisfactory results, but is attended with discomfort to those who have to carry it out. It must be remembered that the experiments of Schill and Fischer are unfavourable to the use of perchloride of mercury.

(3) Light is, in the case of the tubercle bacillus, as it has been proved by several observers to be with other organisms, the most important natural disinfecting agent.

**A. J. M. Bentley**, of Cairo, gives (*Brit. Med. Journ.*, 1894, ii. 1300) some practical hints to invalids on the maintenance of health in Egypt. In order to obtain the full benefit from residence abroad, not only must suitable cases for each particular climate be selected, but proper directions must be given for the maintenance of health under the changed conditions of life. The proper choice of a climate is of vital importance to the invalid ; and as regards phthisis, nothing can be more opposite in climate than the air of a crowded town like Cairo and the pure desert air of Mena or Helouan, or the almost absolutely dry air of Luxor or Assouan ; or between the Delta, which is under the influence of much water and cultivated ground, and Upper Egypt, which is under the influence of the two deserts.

The climate of Egypt in the winter may be summed up as dry and tonic. Its advantages consist in a moderately uniform warm diurnal temperature, an almost complete absence of rain, and a bright sunshine almost throughout the winter months ; so that there is every facility for an outdoor life. There are ample opportunities for driving, and especially riding, and excellent sport for those who are sufficiently robust. There is complete absence at the health-resorts of fog and of excessive cold, while outside the large towns there is an absolutely pure desert air.



The hotels are luxurious and comfortable, and the food supply is good. There is a complete absence of typhoid fever at all the health-resorts, except Cairo itself; and malaria is unknown at Mena, Luxor, or Assouan, so that the windows of bedrooms facing south can be left open.

The drawbacks to a winter sojourn in Egypt are the following:—The opportunities for sight-seeing and social gatherings, with their attendant evils—over-fatigue, overcrowding, and late hours; the occasional cold, high winds, and at times unreliable weather; the sudden and sometimes marked fluctuations of temperature between day and night, sunshine and shade; the hot winds, which commence in February and blow for about two days at a time, accompanied by fine suspended particles of sand (*Khamseen*). To these must be added certain disadvantages not special to Egypt—the custom of invalids not to obtain medical guidance until they are attacked by serious illness; the ignorance of most as to the nature of the climate to which they resort; and often the apparent want of a full appreciation of the object for which they go abroad, which is the restoration of their health.

It is a mistake for invalids to take a long railway journey without a break *en route*. Travelling by train is itself a rapid change of climate, and is to most people exciting; and if any inflammatory mischief is present, it will probably be aggravated. Before starting strict attention should be paid to the state of the bowels, and during the journey the dietary should be as careful as possible, while rest for a time should be ensured if inflammatory symptoms arise on the journey.

It must be remembered that, although the diurnal temperature of Egypt is very uniform, there is at sunset a sudden fall of several degrees, which reaches its climax at 4 a.m. Invalids, whose sensitiveness to cold is at all times marked, should therefore go indoors an hour before sunset and remain there until two hours after sunrise. Again, nothing is more noticeable than the great difference between sunshine and shade. This may be met by invalids wearing as warm clothing as they do in autumn or winter at home, the air being so dry that woollen clothing is not oppressive. They should also always carry a light coat or wrap, and a silk handkerchief for the neck, to be put on when going from sunshine to shade; while in the house overcoats should not be removed immediately after a walk. “Cummerbunds,” or a roll of fine flannel round the abdomen, should be worn by all as a preventive of diarrhoea from chills; and a heavy coat should always be worn in driving. All rooms facing north should have fireplaces, and a fire should be kept burning in December and

January, when the weather is cold or unsettled. Want of care in avoiding chill may lead to diarrhoea, dysentery, or pneumonia, or to fresh inflammation in a quiescent chronic condition of lung disease ; while in women severe local peritonitis has been set up. The direct rays of the sun, especially in March or April, if an umbrella or suitable head protection or smoked spectacles are not used, often lead to congestions, headache, and feverishness. Invalids should not sit or lie in the sun with a cold wind blowing over them. It is especially in going up and coming down the Nile that the conditions above referred to prevail. The days are warm and the wind is keen, while the cold after sunset is intense. The warmest clothing is therefore needed on the voyage. Draughts should be avoided as far as possible, the invalid remaining in the saloon or in his cabin if necessary, and on no account should he go on deck after sunset. Long donkey-rides to tombs and all over-fatigue should be scrupulously declined by the consumptive, with his more or less marked physical debility. The tour made by Cook's regular boat, which is a floating hotel of comfort and luxury, is well suited to the robust pleasure-seeker ; but the best way for the invalid to reach Luxor is by the post boat, which is quicker and more direct, unless he can afford the expense of a *dahabyeh* on the Nile for the winter.

The hot wind, or Khamseen, commences in February and blows for a day or two at a time, but only very occasionally until the middle of April. During its continuance the air is devoid of all moisture, and is more or less charged with electricity, while it is full of minute suspended particles which cause irritation of the eyes and throat. It has a depressing effect on some, while to others it is agreeable and invigorating ; but it is rather irritating to the temper than injurious to the health. In cases of phthisis with cavity it has a positive drying-up and healing influence, while its good effect is also marked in rheumatism and in some cases of asthma. By remaining indoors its discomforts are entirely obviated.

As a rule, invalids leave Egypt too soon in the spring, and run the risk of undoing the good effects of their winter sojourn by encountering the cold variable weather of Europe. They should remain quietly in Egypt till the end of April ; and if they find the neighbourhood of Cairo too hot and enervating, they can go to Ramleh, on the sea-coast near Alexandria, where excellent hotel accommodation can now be obtained. Owing to the nearness of the sea, the neighbourhood of Alexandria has a more uniform temperature, and has therefore advantages in autumn, spring, and summer.

Every medical comfort and good nursing can be obtained in Cairo, Luxor, and Mena; but invalids who require constant attention are strongly advised to bring with them their own nurse or valet.

**Leigh Canney**, Physician to the Luxor Hospital (*Lancet*, 1894, ii. 970), arranges certain pathological conditions into three categories, according to the influence that is exerted upon them by the climate of Egypt.

**CLASS I.**—*Where the patient will derive great benefit :—*

Phthisis: (1) non-erethic cases; (2) hæmorrhagic cases; (3) non-acute cases of first or second stage, especially commencing deposit without very acute symptoms; (4) chronic quiescent phthisis, with or without cavities; (5) cases associated with bronchitis. Asthma, idiopathic and symptomatic; chronic bronchitis and emphysema; cases convalescent from pneumonia, pleuro-pneumonia, and pleurisy, especially cases following influenza where the structures have not returned to the normal state; chronic nasal and pharyngeal catarrh, and Eustachian deafness; cases of mental strain, breakdown, and irritability from overwork, especially when associated with gout, arterio-sclerosis, fibroid kidney, atheroma, and age; cases of hemiplegia and paresis due to vascular changes other than embolism; insomnia not dependent upon heart disease; Bright's disease in all its forms other than acute, and albuminuria generally and after pregnancy; rheumatoid arthritis, gout, and associated lithiasis and renal colic; cases of imperfect convalescence from the acute specifics, as scarlet fever, typhoid fever, influenza, etc., and especially if the kidneys have been involved; hepatic dyspepsia and lithæmia; and rheumatic fever, after the attack.

**CLASS II.**—*Where the patient will derive benefit :—*

Dyspepsia (chronic atonic and chronic catarrhal), hysteria, alcoholism, hypochondriasis, neurasthenia, early cases of locomotor ataxy and sclerosis of the cerebro-spinal system, neuralgia (of rheumatic or malarial origin), premature senility, early valvular disease, "functional" heart disease, bronchiectasis, children with strumous tendency, adenoid growths, hepatic disease contracted in India, the subjects of which are returning to Europe too early in the winter; glycosuria in gouty subjects, etc.

**CLASS III.**—*Unsuitable cases :—*

Phthisis with very acute symptoms, or tendency to diarrhœa, or repeated pleurisy, or involved larynx, or active disease of both

lungs ; advanced emphysema, with weak dilated right side of the heart ; fatty heart, angina pectoris, hypertrophy and dilatation of the left side of the heart, aortic regurgitation and aneurysm, advanced endocarditis, dysentery or after dysentery, chronic diarrhœa, tuberculous kidney, acute diabetes, neuralgia (other than the forms included in Class II.), advanced locomotor ataxy and nerve sclerosis generally.

Surgeon-Colonel J. B. Hamilton gives some useful practical advice to invalids about to visit South Africa (*Brit. Med. Journ.*, 1895, i. 206). The subject is discussed under two headings : (1) The so-called "round-trip"—i.e. the voyage to Natal (Durban), *via* Cape Town, and back ; (2) a period of residence in South Africa. As regards the first, there are points to be considered as to health and comfort on the vessels of the "Castle" and "Union" lines. The choice of a cabin is most important, and for bachelors the deck cabins are far superior to those below, as their ports can be kept open in the heaviest weather. The greatest drawback to the ships of these two lines is that the cabins are nearly all situated on the main-deck, and that the ports are too near the water, so that they must be closed when there is any sea on. The deck cabins are free from this objection. For those who can afford the time, it is advisable to take passage in the "intermediate steamers," which take a few days longer on the voyage, but are not crowded. Of these, the *Guelph*, the *Goth*, the *Greek*, and the *Gaul* are by far the best. The table on all the vessels is excellent, and anything ordered by the medical officer can be obtained. Persons engaging cabins for the "round voyage" should be careful to secure the same berth for the homeward journey, and to have a written promise to this effect on taking their ticket ; otherwise the agents at Cape Town will let all the best cabins. As regards clothes, it is best to have light flannels for wear in the tropics, with canvas shoes, and a good sun-resisting hat or helmet. A good sailor may complete the trip by ship all the way ; but this generally means having bad weather on the coast voyage, with a heavy swell when lying three days at Port Elizabeth, one at East London, and three at Durban, with the same at the other ports on the way down ; besides three or four days at Cape Town going out and coming home, lying in the docks in a blazing sun, with the air thick with coal-dust. The traveller should therefore take his ticket to Cape Town and back, disembarking there and waiting for the steamer on her return journey. The hotels in the place, however, are to be avoided in the summer, as the heat is very great, and when a south-wester blows the air is full of dust and sand.

There are several good suburban hotels, the best being the "Vineyard," at Newlands—twenty minutes by train from Cape Town—situated close under the mountain, surrounded by magnificent trees, and in the centre of lovely scenery. The charge is 12s. 6d. a day inclusive, and the fare is excellent. The invalid can then either make trips to the mainland or remain on the peninsula. The latter is the more advisable, as railway journeys there are not comfortable, the carriages being small and the food procurable at some of the stations "vile in the extreme." Delightful trips may be made from Newlands pending the return of the steamer.

As regards the second part of the subject, residence in South Africa, the climate is, in many places, the best in the world, and cases of phthisis do well if not sent out too far advanced. When there is fever and the lung is breaking down, South Africa is not advisable. The high table-land called the Karroo is the best part for delicate lungs, and many will live there for years who could not last more than a few months at home. The great drawback is the miserable hotel accommodation and the want of suitable food. As a patient said lately, "All the good I derived from the climate was undone, and more than undone, by the absolute starvation I had to put up with. The food was never decently cooked, and I could not remain to be starved to death." Hence, where residence in the highlands of South Africa is desirable, none but those who can rough it should come out, unless they can bring their own servants and are prepared to go to heavy expense for bare necessities. The greatest curse of the country is the servants, who are nearly all coloured. All necessities are very dear, shop goods being about 50 per cent. above retail London prices; bread being more than double the price in England, and tea about double.

C. A. Griffiths gives (*Brit. Med. Journ.*, 1895, i. 389) a few notes of a three months' residence in the Canaries last winter. He left England in February for Santa Cruz, and travelled thence by carriage to Orotava. He found the climate remarkably equable. The days, as a rule, were fine and sunny; and even at the end of April, when the heat was getting more intense, they were never sultry. The nights were pleasantly cool, but not cold enough to prevent sitting out of doors. The streets are dirty and ill-paved, and the sanitary arrangements primitive, "the porous volcanic soil being made to do duty for the drainage-pipes of more modern and civilised communities." A great point in favour of these islands as a winter resort is that invalids can spend the greater part of their time in the open air. The weakly can be

carried about in hammocks, go for drives, or lie about on the *patios* of their hotels; while the more robust can go in for walking, lawn-tennis, riding, sea-fishing, etc. Sea-bathing can be indulged in even in winter, and also mountain-climbing, from the smaller hills to the snow-clad peaks. Choice of residence can also be made from the sea-level to 4,000 or 5,000 feet above it. The town residents retire to these mountain resorts in the summer months. He found, even in advanced cases of phthisis, that the equable climate was very acceptable, and for milder cases he thought it "little short of perfection." He estimates the cost of living at the English hotels at 10s. or 12s. a day.

## **2. Treatment by special remedies.**

The importance of the recent development of antitoxin treatment in the case of diphtheria has given additional impulse to investigation in the domain of serum therapeutics in general, and it is no matter for surprise that attention has been directed anew to the possibility of the treatment of tuberculosis on similar lines.

A communication of much interest on the serum treatment of tuberculosis was made by E. Maragliano, of Genoa, to the Section of Medicine at the annual meeting of the British Medical Association in London (*Brit. Med. Journ.*, 1895, ii. 444). After alluding to the curability of phthisis as proved by the evidence of the *post-mortem* room, and referring to the endeavours of Richet and Héricourt in France, of Babes in Hungary, and of Paquin in America, to discover an antituberculous vaccine, he submitted his own researches which he had pursued for three years, and which had resulted in the discovery of a serum having a specific curative action on tuberculosis—that is to say, a serum presumably containing tuberculous antitoxins. This serum he has obtained from dogs, asses, and horses, "by procedures different from those hitherto adopted, absolutely discarding cultures of living bacilli, and availing myself exclusively of the highly toxic principles extracted from these." By progressive vaccinations dogs are immunised against intravenous injections of very active tuberculous matter taken from the human subject. As the result of experiments to determine the potency of this serum, he has found that on injecting tuberculin together with a sufficient quantity of the serum into a tuberculous subject no reaction, either general or local, takes place; whereas the same quantity of tuberculin injected alone produces both general and local reactions. He considers that the power of a serum to neutralise the toxic effect of tuberculin is the best gauge of the therapeutic potency of an antituberculous serum. He has tried the serum clinically in

eighty-two cases, including all forms of pulmonary tuberculosis from the gravest to the slightest, and has arrived at the following conclusions:—

1. Cases in which there are circumscribed foci of disease without any great degree of fever, and without any great admixture of other micro-organisms (diplococci, streptococci), are commonly benefited. Out of forty-five such cases, all (twenty-nine in number) in which the treatment was carried out systematically might be regarded as cured. The remaining sixteen improved greatly, but at the date of the report were still under treatment, or, believing themselves to be cured, had declined to continue it.

2. Cases in which there are diffuse foci of tuberculous broncho-pneumonia, but without any considerable association of other microbes, even if moderately febrile, are benefited in some degree, occasionally to such an extent as to give grounds for hope that by perseverance a complete cure may result. Of fourteen such cases treated, all were improved, some to a marked extent.

3. Cases of diffuse broncho-pneumonia, with considerable association of other micro-organisms, are not appreciably benefited. Of fourteen such cases, however, none got worse, and some even gained a little.

4. Cases of destructive broncho-pneumonia with cavities derive some slight benefit from the treatment. Of nine such, three showed some improvement (reduction of temperature and increase in weight), four others were very slightly relieved, and in two the disease ran on unchecked to a fatal issue.

The author states that the improvement is lasting provided that the treatment be continued long enough to bring about a cure. In some of his cases the cure has been maintained for two years; in others, in which the treatment has been abandoned prematurely, relapse has occurred. He believes that the serum acts by introducing defensive materials into the organism, where they lead to the production of others. He deprecates exaggerated expectations in advanced stages of the disease when there exist profound lesions of tissues, and declares that "antituberculous serotherapy can be of use and can reasonably be expected to effect a cure only in those cases in which no destructive foci exist." The duration of the disease is a secondary matter. The important points are the extent, intensity, and nature of the pulmonary lesions. Another point of great moment is that a mixed infection—the association of diplococci and streptococci with the bacilli of tuberculosis—retards or altogether neutralises the effect of the treatment. Hæmoptysis is not a contra-



indication ; nor indeed is any contraindication recognised. The treatment is held to be applicable in all forms of pulmonary tuberculosis. It never does harm, and nearly always does good. No definite conclusion has yet been come to as regards the prophylactic value of the remedy.

The *technique* of the process is as follows :—The injections are made into loose subcutaneous tissue, the site preferred being in the posterior axillary line towards the base of the thorax. No pain is caused, and as a rule no local reaction. In a few cases, however, there were some redness, swelling, and pain at the site of injection, occasionally with slight rise of temperature, all of which disappeared in two or three days.

In cases where there is no fever, Maragliano begins by injecting 1 c.cm. on alternate days for ten days ; then he injects 1 c.cm. every day for ten days. Finally two injections of the same quantity are given daily for ten days. Where there is pyrexia, an attempt should be made to subdue it by large doses, and 10 c.cm. should be given at once. If the temperature does not rise again, after three days a daily injection of 1 to 2 c.cm. should be given. But if the fever persists, a second injection of 10 c.cm. should be given eight days after the first. The beneficial effects of the treatment show themselves sometimes within a fortnight ; sometimes not till after a couple of months. Even when cure seems to be complete the treatment should be continued for a month ; and the author thinks it would be well, by way of precaution, to give a weekly injection of 1 c.cm. for at least a year. General hygienic treatment must on no account be neglected.

Richet (*Soc. de Biolog.*, Jan. 12, 1895) has resumed the experiments which he made with Héricourt in 1889, showing that by means of injection with serum the evolution of avian tuberculosis could be retarded in rabbits. He took twenty guinea-pigs and divided them into five groups of four each ; one group was used for purposes of control, the second received normal serum, the third microbic serum, the fourth the milk of an ass inoculated with tuberculin, and the fifth serum from an ass so treated. All were then inoculated with a culture of tuberculosis. The animals of group 5 died very rapidly, those of group 4 died almost under the same conditions, those of group 2 died much later, while those of group 3 resisted for a long time, and some even altogether. Richet concludes from these experiments that the serum of an animal inoculated with tuberculin always contains toxic principles ; that the milk of an animal inoculated with the same substance is almost innocuous ; that normal serum retards the

progress of tuberculosis; and that microbic serum can prevent its development. Five years ago Héricourt began to treat a "tuberculous patient with inoculations of immunised dog's serum, and claims to have cured him; and since then Richet and Héricourt have had a very satisfactory result with the same serum in the case of a woman seriously ill with tuberculosis.

A. Gamgee contributes to the *Lancet* (1894, ii. 811) an article criticising Viquerat's treatment of tuberculosis, founded on a visit paid to that practitioner at Moudon. He concludes that this method of treatment is as yet in a tentative stage, and that the evidence in its favour is insufficient to justify the confident anticipations which have been indulged in; and his opinion is fully borne out by the report of a meeting of the Société Médicale de la Suisse Romande (*Lancet*, 1894, ii. 1049), at which this method was under discussion. At this meeting Viquerat simply announced that he had cured twenty-five tuberculous patients, and exhibited two cases—one of lupus, which was not cured, and one of empyema, which was not proved to have been tuberculous—in which the serum injection had been practised.

The failure of so many reputed specific methods for the treatment of tuberculosis has directed attention more closely to the various means whereby the organism may be better equipped to meet the attack of the disease; as witness the prominence now given to all hygienic measures, and to the influence of climate. The researches of Metchnikoff on the function of the phagocytes in the destruction of micro-organisms that may chance to enter the system lend a special interest to any attempt to aid this protective force directly. V. C. Vaughan (*Journ. of the Amer. Med. Association*, 1894, i. 824) claims for the nucleins an influence in infective diseases due to the increase which they cause in the number of white blood-corpuscles. Physiologically, nuclein may be said to form the chief chemical constituent of the living parts of cells, being the chemical basis of the nucleus. The nucleins are complex proteid bodies, characterised especially by the large amount of phosphorus which they contain. They have been prepared from such varied sources as yeast, yolk of egg, casein, blood-corpuscles, and salmon sperm. The author has elsewhere shown that some of the nucleins possess bactericidal power; and that the germicidal constituent of blood-serum is nuclein, derived from the polynuclear white corpuscles. It remained to be ascertained whether nuclein could be used to arrest or destroy the growth of germs in the body. The author has therefore attempted to render animals immune to certain diseases by treating them with nuclein before inoculating them with the germs. The diplococcus of pneumonia.

is a germ which is most fatal to rabbits, causing death on the second or third day. Immunity to the germ had been secured by previous treatment with the attenuated poison, and with sterilised cultures, and the present experiments were undertaken to prove whether immunity to the *diplococcus pneumoniae* could be secured by previous treatment with nuclein. The solution used contained about 2 per cent. of yeast nuclein. The results of the experiments are as follows:—(1) Three injections of nuclein. The treated animal survived the untreated or “control” by twenty-four hours. (2) Four injections. The control animal died, while the treated one was evidently ill, but ultimately recovered completely. (3) Six injections. The untreated animal died; the treated one sickened, and died seven days later. In this case the intervals between the injections of nuclein were longer; and the result shows that its effects are transient, and that to be of certain use it must be administered at comparatively short intervals. (4) Nine injections. All four controls died; while the treated animal at first sickened, but afterwards completely recovered. (5) Eight rabbits were treated with increasing doses of nuclein seven times within ten days, and then inoculated with a virulent culture of the *diplococcus* at the same time as two control animals. Two days later, both controls and two of the treated rabbits were dead; all the others remained well. Hence here immunity was conferred upon 75 per cent. of the animals treated, while all the controls died—as they did in all the other experiments.

Experiments were then undertaken to determine whether the immunity thus secured was due to the direct germicidal action of the nuclein, or whether the latter acted by stimulating some organ whose duty it is to protect the body against bacterial invasion. Ten rabbits were inoculated with a virulent culture of the *diplococcus pneumoniae*, and immediately after a large dose of nuclein was injected into eight. All died. This would indicate that the production of immunity was “an educational process,” and that the immunity secured by the repeated doses of a smaller quantity of the nuclein was not due to its direct germicidal effects, but to its stimulating influence upon some organ. The following conclusions are drawn from the experiments:—(1) Rabbits and guinea-pigs may be protected against virulent cultures of the *diplococcus pneumoniae* by previous treatment with yeast nuclein. (2) The immunity secured is not due to the direct germicidal action of the nuclein. (3) The process is educational, and probably depends upon the stimulating effect of the nuclein on some organ whose function it is to protect the body against bacterial invasion. (4) The longer the treatment is continued, and the

more frequent the administration, the more complete is the immunity. (5) In order to obtain this immunity, the inoculation with the germ must follow soon after the last treatment with nuclein. Further experiments undertaken upon guinea-pigs to render them immune to tuberculosis gave results not altogether satisfactory, and in some respects contradictory; but they would seem to indicate that previous treatment with nuclein retards, but in most cases does not prevent, the development of tuberculosis from inoculations. In another series of experiments the treatment was not begun until some days after the inoculation of tuberculous virus; and it was impossible to say how far the disease had progressed when the treatment commenced. From these experiments the conclusion appears justified that the progress of tuberculosis was retarded and the virulence of the bacillus reduced (as shown by the results of secondary inoculations).

The exact value of nuclein cannot yet be stated. It appears to be wholly innocuous. In some persons, however, some elevation of temperature may be caused, and in some a temporary erythematous redness has appeared about the site of injection. The author has used daily injections of nuclein for six months without any ill effect.

To what is the action of nuclein due? The phagocytic theory before referred to teaches that the polynuclear white corpuscles are the natural defenders of the body against bacterial invasion. The researches of Nuttall and others showed that blood-serum freed from corpuscles has germicidal power. But the author and McClintock have shown that the germicidal substance in blood-serum is a nuclein, and certainly its most probable source is the white corpuscle. Huber has investigated the effect of the administration of nuclein, and he concludes that the subcutaneous injection of this substance increases the number of white corpuscles, in degree varying with the individual, that this increase occurs principally in the polynuclear cells, and that it is usually evident within three hours of injection, and disappears after the forty-eighth hour.

If the nucleins prove of any value in tuberculosis, it will probably be due to the fact that they increase the polynuclear white corpuscles. The author has used nuclein in the treatment of tuberculosis in man since May 1st, 1893. At first he employed yeast nuclein only, but now he is using that derived from the spleen. He has not as yet sufficient evidence to bring forward; but any benefit that may be obtained can be expected only in initial cases.

Some few cases of tuberculosis treated with nuclein have

already been recorded. **F. W. Garber** (*Therapeutic Gazette*, 1895, p. 5) has injected yeast nuclein once a day, in doses of from 15 to 45 minims of the solution prepared from Vaughan's formula. No ill effects were noted. He mentions the following instances: (1) Female, aged thirty-nine; well marked tuberculosis of right apex, with cough, night-sweats, anorexia, diarrhoea, and emaciation. Evening temperature 100° F. Duration about sixteen months. Hemoptysis had occurred. Steady loss of ground under other treatment. She was put on nuclein, 15 minim doses, gradually increased to 45, and then dropped to 30, because of febrile disturbance and pain caused by the larger amount. Creasote with nux vomica and arsenic were also ordered, together with cod-liver oil; while night-sweats were met by agaricin and oxide of zinc (this accessory treatment necessarily complicates the investigations as to the effect of nuclein). In a week there was distinct gain, and in three weeks menstruation occurred for the first time since the birth of her child seventeen months before; and this has since been regular. In a month temperature was normal, appetite improved, cough much less, night-sweats gone, and bowels much improved. At the end of six weeks twelve pounds had been gained in weight. At the end of two months the patient went to California, and, according to information since received, has continued to gain ground under the treatment, which is still kept up. (2) Female, aged twenty eight; tuberculosis of right apex of six months' duration; marked hectic; evening temperature 101.5°. Cod-liver oil, creasote, etc., already tried without benefit. Nuclein was injected on alternate days for six weeks, and then daily for nearly two months. All symptoms have improved, temperature is nearly normal, and weight has increased three pounds; general appearance much improved. Before nuclein was begun she was steadily losing ground; since, she has more than held her own, though taking the remedy somewhat irregularly. (3) Female; no definite physical signs, but one hæmorrhage, loss of flesh and appetite, cough, night-sweats, and general "run-down." No definite benefit from ordinary remedies. Under nuclein on alternate days all symptoms rapidly improved, with marked increase in weight, and now, four months from commencement of treatment, the patient seems practically well. (4) Male, aged forty; consolidation of both apices, and also laryngitis; severe cough, with much sputum; all the symptoms of marked phthisis. In four weeks the weight had increased seven pounds, cough and throat symptoms were distinctly improved, and appetite was good. The patient passed from observation

after six weeks, when improvement was continuing. (5) Male, aged thirty; hæmoptysis four months before, almost all the right lung involved; great loss of weight, cough incessant, night-sweats; evening temperature  $103^{\circ}$  F. Nuclein was at once administered, "with such additional therapeutic aid" as was needed. In a month, a gain of eight pounds in weight, night-sweats almost gone, cough much improved, and temperature normal; physical signs unchanged. The patient says he never felt better in his life. (6) Female, aged thirty-two; extensive disease of right lung; symptoms marked. During nearly three months the patient has grown rapidly worse under treatment by nuclein. (7) Male, aged eighteen; extensive disease of both lungs, of over twelve months' duration. No improvement in nearly three weeks' treatment. (8) Male, aged twenty-eight; consolidation of left apex; all symptoms present; weight lost, thirty pounds. Bad family history. In ten days five pounds were gained in weight, and improvement continued after two months' treatment. The author concludes from the above cases that nuclein is of value in incipient tuberculosis, but that little can be expected of it when the disease is advanced.

M. O. Teigen reports (*Therapeutic Gazette*, 1895, p. 361) four cases of early pulmonary tuberculosis, which previously under ordinary measures had improved up to a certain point, beyond which they could not pass. A trial was then made of nuclein, with encouraging result. The cases were as follow:—(1) Male, aged nineteen; pronounced symptoms; evening temperature  $101^{\circ}$ ; numerous bacilli present; consolidation of right apex. No definite improvement took place until the injections of nuclein were commenced. He then gained fifteen pounds in five weeks; cough and sputum have diminished, as also the number of bacilli, pulse and temperature; "he eats like a harvest hand," physical signs are less marked, and he looks a fairly healthy youth. (2) Female, aged nineteen; ailing eight months; cachectic aspect; cough, fever, and night-sweats; menstruation absent for nine months; consolidation, with softening of upper and middle lobes of right lung. Under creasote and cod-liver oil and terebene the patient gained  $6\frac{1}{2}$  pounds, and felt much better. Nuclein was now given, with still greater improvement; night-sweats and fever decreased; for several weeks the average weekly gain has been  $2\frac{1}{2}$  pounds; menstruation is re-established, and the patient can take long walks. Vocal fremitus and dullness have lessened, and there are increased expansion and improved respiration. The patient is apparently on the highway to recovery. (3) Male, ill four months; weight lost, 25 pounds; cough, hoarseness, night-sweats,

and fever ; abundant sputum ; ulceration of larynx ; consolidation in small area in left upper lobe ; bacilli abundant. In ten days under nuclein he gained two pounds, and felt stronger daily, and night-sweats ceased. Then he grew steadily worse, and went home with no prospect of improvement. (4) Female, aged thirty-three ; evidence of incipient tuberculosis ; discouraged by the slow progress made, the patient gave up treatment after a fortnight. The author strongly inclines to the belief that nuclein did benefit two of the above cases to a rather remarkable degree, hitherto unattainable by the older methods of treatment.

**R. W. Wilcox** records (*Therapeutic Gazette*, 1895, p. 518) a case in which nuclein was administered. The patient was a man aged twenty-four ; cough began eight months ago ; recent hæmoptysis, some loss of flesh ; hoarseness for five weeks ; temperature,  $101\cdot2^{\circ}$  F. ; consolidation of upper lobe of right lung ; quiescent consolidation with dilated bronchus in apex of left lung ; innumerable bacilli present. When the hæmorrhage was checked nuclein was administered, and in twelve days there had been improvement in every respect, the physical signs becoming less marked. In two months the patient felt well enough to return to work ; improvement had steadily continued, and the bacilli had disappeared a fortnight before. A fortnight after returning home the patient was still improving, and bacilli were absent. He then passed out of observation.

It is obvious that no definite conclusion as to the value of nuclein in the treatment of tuberculosis is at present possible. The theory of the mode of action of this substance is attractive, and some practical evidence has been advanced in its support ; but much more extended observation will be needed before any definite value can be assigned to it. Supposing that nuclein acts, not by directly neutralising the virus, but by aiding phagocytosis and thus increasing the resisting power of the organism, it is probable that there will be no constant relation between the quantity of this substance introduced and the resulting effect, inasmuch as the power of response of the organism to the beneficent stimulus will vary with the individual ; and hence cases of apparent failure must not be allowed to weigh too heavily against instances where there may be reason to believe that the influence of nuclein has been good.

A paper on the treatment of respiratory affections by means of large medicinal injections through the larynx was communicated to the Royal Medical and Chirurgical Society by **Colin Campbell** (*Brit. Med. Journ.*, 1894, ii. 1238), with the object of demonstrating the practicability and utility of intra-tracheal



injections, and of advocating their application to phthisis and many other pulmonary affections, including hæmoptysis. The solution employed by Rosenberg and Grainger Stewart was composed of guaiacol (2 per cent.), menthol (10 per cent.), and olive oil (88 per cent.). The author had employed menthol in glycerine (Price's, which does not irritate the bronchial tubes). Glycerine was a better medium than olive oil, on account of its expectorant properties. In hæmoptysis he had used turpentine in olive oil. The amount injected with a specially modified syringe was 1 drachm or  $1\frac{1}{2}$  drachm. The injection was made rapidly, during inspiration, and might be performed twice, or even more times, at the same sitting.

The results obtained are summarised in the following table:—

No.	Age and Sex.	Disease.	Duration of Treatment.	No. of Injections given.	Bacilli present.	Result.
1	24, F.	Phthisis (cavity)	Days 480	1,450	Yes	Symptoms relieved; cavity undiminished.
2	25, F.	" "	420	370	"	Much improved in every way.
3	45, M.	" "	240	400	"	Dead.
4	43, F.	" "	30	30	—	"
5	28, M.	" "	30	40	Yes	"
6	51, M.	Abscess of lung	180	370	No	Recovered.
7	27, M.	Phthisis (cavity)	60	20	Yes	Dead.
8	26, F.	" "	420	370	"	Improved.
9	3, M.	" ?	30	25	—	Recovered.
10	24, F.	" "	30	25	Yes	Recovered (?).
10A	27, M.	" "	4	4	"	Discontinued treatment.
11	27, M.	Asthma	—	30	—	Improved.
12	64, M.	Bronchiectasis	30	20	—	No improvement.
13	15, M.	Ch. bronchitis	150	250	—	Recovered.
14	57, M.	Asthma	24	24	—	"
15	F.	"	24	24	—	"
16	M.	"	30	30	—	"
17	62, M.	Ch. bronchitis	7	6	—	"
18	37, M.	Laryngitis	6	6	—	"
19	30, F.	Aphonia and laryngitis	6	6	—	"
20	38, M.	Laryngitis, aphonia	6	6	—	"
21	38, M.	Phthisis (cavity), ulceration of larynx	14	24	Yes	Symptoms much relieved.
22	M.	Phthisis, hæmoptysis	3	3	"	Hæmoptysis ceased immediately.
23	23, M.	Hæmoptysis	8	3	—	"
24	56, M.	Ch. bronchitis	12	12	—	Much improved.
25	48, M.	Hæmoptysis	4	4	—	Hæmoptysis ceased immediately.

Theodore Williams, in commenting upon this paper, stated that he had not employed intra-laryngeal injections in the cases

described, as he had found the results of inhalations and sprays disappointing. The operation of injection was not difficult, but he inquired how the fluid could be directed specially to the diseased part of one lung so as to concentrate its action at the desired spot. In his own hands the injection of antiseptic fluids through the chest-wall into pulmonary tissue or into a vomica had not been satisfactory, as so much pain and coughing were induced that the patients would not continue the treatment. He had seen good results follow the use of turpentine spray in hæmoptysis.

**J. K. Fowler** had had some experience of this method of treatment. Two drachms of the antiseptic fluid could be injected through the glottis without causing discomfort. If the injection was made on to the vocal cords, coughing resulted; but this could be avoided by passing the nozzle of the syringe through the rima glottidis and then driving the contents into the trachea. He had used the solution of guaiacol, menthol, and olive oil employed by Rosenberg and Grainger Stewart, in doses of 1 drachm twice a day, in order to lessen expectoration and remove fœtor. It had been successful in three cases:—(1) A woman aged thirty-three, with syphilitic lung disease, who brought up daily 16 ounces of fœtid sputum, greatly improved under treatment; the expectoration markedly diminished in amount and the fœtor disappeared. (2) A boy aged seventeen, with bronchial catarrh, brought up daily 7 or 8 ounces of offensive sputum; by this treatment the amount was reduced to 3 ounces. (3) A boy aged nineteen, as a result of gangrene of the lung following pneumonia four years before, had a cavity at the base of the left lung, with copious and fœtid expectoration; after treatment the fœtor disappeared, the amount of sputum lessened, and the patient much improved in every way. He thought it was necessary to wait before drawing definite conclusions, but considered the method worthy of further trial.

**K. McLeod** mentioned that in 1860 Hughes Bennett had used strong injections of nitrate of silver for laryngeal affections.

**Routh** referred to the large quantities of fluid which could be injected into the bronchi and lungs, and absorbed in a few hours without producing any bad effect.

**Mitchell Bruce** had employed this method of treatment in two cases with good results:—(1) A man aged thirty-four, who had for some time remained stationary under other measures, was treated twice a day with injections of Rosenberg and Grainger Stewart's mixture. The expectoration, which had been extremely offensive and had averaged 15 ounces daily, was reduced to

5 ounces and almost lost its foetor, while the patient improved both in general health and as regards physical signs. (2) A man aged twenty-four had a remittent temperature and foul expectoration from some obscure condition, possibly spreading from the abdomen to the right pleural cavity and lung. Directly the injections were given the temperature fell, and very rapid improvement took place for a time; but the patient had since relapsed, and now the intra-tracheal injections failed to do good.

In reply, Colin Campbell said that he tried to direct the fluid injected to the affected part by making the patient lie on that side after the injection. He laid stress on the importance of passing the syringe rapidly through the glottis, and, by thus surprising the larynx, obviating its irritability. (*See also "Year-Book of Treatment" for 1894, p. 33.*)

**Bosc** (*Lyon. Méd.*, Nov. 18, 1894) discusses the treatment of acute pulmonary tuberculosis by the external application of guaiacol. He first refers to the antipyretic action of guaiacol used in this way in tuberculosis, and then relates the following remarkable case of acute pulmonary tuberculosis in a woman aged thirty-three. A year before she was found to have slight physical signs at both apices, and tubercle bacilli were present in the sputum. On admission there was much wasting, anæmia, and prostration, and slight diarrhœa. The pulse was 120 to 130, and the temperature was fluctuating. The physical signs of phthisis, however, were slight. During the next few days there was blood-stained sputum, with great dyspnœa, and the patient's condition grew worse. Two grammes of guaiacol in an equal amount of sweet almond oil were applied to the back of the hands; and by the next morning the temperature had fallen 3° C., dyspnœa, cough, and expectoration were diminished, and the general condition was relieved. Guaiacol was further applied, and the improvement continued. A fortnight later the patient was able to get up. She had gained flesh, and her appetite was excellent. The temperature remained low, and there was no cough. The rapid improvement was remarkable. The effect on the temperature and the general condition was marked and lasting. The author does not think that there is any doubt about the diagnosis, or any question of mere coincidence in the result. Alarming symptoms in the shape of low temperature, copious sweating, and tendency to collapse have been related as the result of this method of applying guaiacol, and it is well not to exceed 1 or 2 grammes for each application.

At a meeting of the Royal Academy of Turin, **Scarpa** (*Gazz. deg. Osped. e delle Clin.*, March 16, 1895) communicated the

results obtained in 150 cases of pulmonary phthisis treated with ichthyol between April, 1894, and January, 1895. Having referred to the favourable results of the treatment reported by Cohn, of Hamburg, in 100 cases of the same disease, the author pointed out that from what was known of the action of ichthyol as an astringent of the vascular system, as an antiseptic, as a disinfectant of the digestive apparatus, and as an *aliment d'épargne*, it was *à priori* presumable that it would be useful in phthisis. He employed the drug in the purest possible state, dissolved in the proportion of one-third in distilled water or any suitable vehicle. Of this solution he gave from 20 to 180 or 200 drops, dissolved in water, in the course of the day. The remedy was in all cases well borne. No other treatment was employed beyond attention to the hygienic environment and feeding up. Of the 150 cases, twenty-three died. All these were in a desperate condition before the treatment was begun, but even in these the ichthyol seemed to do some good. Of the remainder, seventeen were apparently cured; in fifty there was notable improvement; in thirty-two there was some improvement; in twenty-eight no effect had been produced up to the date of the report. The good effect of the drug is first shown in the influence which it has on the symptoms due to the local lesions—cough, expectoration, dyspnoea—and afterwards on the general condition. Physical examination shows profound modification in the lesions, especially in the circumscribed infiltrations of the early stage; but also not infrequently in those of the stage of breaking-down. The author does not attempt to decide whether ichthyol acts only by improving nutrition, or also by direct action on the lesions, or by neutralising the toxins produced by the micro-organisms—Koch's bacillus and the staphylococci, etc.—which are the causes of secondary infection. He insists on the advantages which the remedy possesses over guaiacol in the treatment of tuberculosis.

In an article on "Smoking as a Protection against Lung Disease," the *British Medical Journal* (1895, i. 717) discusses the view advanced by C. J. Montgomery (*Philadelphia Medical News*, 1895, i. 282) that smoking is a preventive of pulmonary disease. Montgomery holds that tobacco smoke is not only an antiseptic and germicide of considerable power, but by its action on the pulmonary circulation is useful in relieving or preventing any tendency to chronic congestion of the lungs. Even when the smoke is inhaled into the lungs he believes that it does no harm, unless it be mixed with irritating or poisonous substances produced in the burning of inferior kinds of paper often used in the making of cigarettes. In support of his contention, he alludes

to the comparative immunity from pulmonary disease which is enjoyed by workers in tobacco factories. He quotes Rueff, who says that he has known some who entered the factory in a state of emaciation, with blood-spitting and cough, and who there got rid of all symptoms of lung disease. Consumption is said to be unusual in tobacco factories. That tobacco kills microbes has been proved by Tassinari by an elaborate series of experiments, as the result of which he strongly recommended smoking as a means of protection against cholera and other infectious diseases, and in particular as a disinfectant of the mouth. Wernicke also showed that tobacco destroys the cholera vibrio. Still more germane to the subject are the observations of Visalli, who, during an epidemic of influenza in 1889, was struck by the fact that workers in tobacco factories almost entirely escaped. In Genoa, for instance, out of 1,200 workpeople, not one was attacked. In similar establishments in Rome the number who suffered from influenza was so insignificant that the works never stopped. Not everyone, however, can spend his days in a tobacco factory ; and it is, to say the least of it, doubtful whether the same effect can be got by smoking cigarettes. As far as the prevention of lung disease is concerned, a partially antiseptic atmosphere, such as that caused by tobacco smoke, is no doubt to some extent a safeguard against micro-organisms ; but there are other organs—notably the heart and the nervous system—which must be taken into account. Probably smoking, well within the limits of individual tolerance, is in no way injurious ; but any attempt to maintain a germicide atmosphere by smoking would be likely to result in grievous harm. Statistics have not yet been compiled showing the comparative incidence of phthisis in the case of smokers and non-smokers, or the course of the disease in the two categories when it is once established ; but they would be of interest in view of Montgomery's championship of tobacco.

### **3. Treatment of special symptoms.**

V. D. Harris relates (*Lancet*, 1894, ii. 1089) the result of some observations on the dyspepsia of phthisis. He observes that it is unusual for a case of phthisis entirely to escape intercurrent attacks of dyspepsia. Sometimes the dyspepsia occurs at the commencement of the tuberculous infection of the lung, and occasionally may seem to precede it—or at any rate to precede the establishment of a lesion large enough to produce definite physical signs. Not uncommonly, indeed, at this period the symptoms of dyspepsia altogether throw into the background those of the actual disease. Later, signs of weak and insufficient digestion become more and more the rule, so that in

the later stages they are seldom absent, and are often exceedingly troublesome. Hence it is obvious that the treatment of the disorders of digestion in phthisis is of great importance; and anything tending to throw light upon the causes tends to make the treatment more successful.

In wasting diseases it would appear probable that together with the shrivelling of other tissues there would be a wasting of the glands of the body, and if these waste, the product of their metabolism will be diminished; and in the case of the glands secreting the digestive ferments, the daily output of these ferments, which are of prime importance to digestion, will be lessened. This would suffice to account for imperfect digestion in phthisis. Experiment appears to confirm this *à priori* reasoning. Investigations of the author into the ferment actions of the pancreas\* under different conditions show that the amount of these ferments to be obtained from the gland *post mortem* varies considerably, and that in many wasting diseases the amount is distinctly diminished. This was certainly shown to be the case in chronic phthisis, although no relation could be made out between the diminution of the ferments and the amount of disease in the lung. The diminution was marked in about 50 per cent. of the cases examined. In one case the diastasic power of the pancreatic extract amounted to one-third of the power of that made from the gland of a patient who died suddenly when in good general health. In another case the tryptic ferment was inappreciable, while the other ferments were present in very small amount; and in a third it was noted that all the ferments existed only in slight traces. So, then, the ferments to be extracted from the pancreas after death from chronic phthisis having been found in a considerable proportion of cases to be deficient, it is not unreasonable to suppose that these ferments are also during life sometimes much less in amount than normal. With reference to the gastric ferments, judging from the fibrotic changes in the mucous membrane of the stomach which have been shown by S. Fenwick and others to exist in phthisis, it would not be an unfair inference that the gastric ferments also are sometimes deficient. Lastly, the ferment activity of the saliva in phthisis can be more directly investigated. In fifty cases examined by the author the diastasic ferment of saliva was present in all, but its amount—as estimated by its activity—was a varying quantity. Taking the diastasic value of the saliva from two healthy adults as the

\* St. Bartholomew's Hospital Reports, 1893, p. 125 *et seqq.*, and *Journal of Physiology*, vol. xiii., No. 6, p. 169 *et seqq.*

standard, this was found, in terms of the starch solution, to be about 12. Of fifteen cases of phthisis, about one-half showed nearly normal activity; in three there was a sensible diminution; whereas in four the activity was about 2, or one-sixth of the normal. Thus it seems probable that in phthisis the saliva may be of little use in digestion, since the diastasic ferment is sometimes markedly deficient.

If, therefore, the dyspepsia of the phthisical is due to a diminution of the digestive ferments, a lesson can be drawn in its treatment. The food of the tuberculous should consist of materials that have been thoroughly cooked, or of those that have been in part subjected to artificial digestion; and should be administered in small amounts to give the diminished ferments more chance to do their work. Whether it is expedient to stimulate the more or less diseased glands to extra secretion by the administration of acids or alkalies may be considered doubtful; but at any rate digestive ferments may be added to the drugs which are administered in the disease if dyspepsia does not yield to other kinds of treatment. The author has satisfied himself that malt extract contains a powerful diastasic ferment in addition to the maltose of which it chiefly consists. If this ferment is of use in the dyspepsia of phthisis, the beneficial effect of malt extract in some cases may be explained. The value of pepsin and papain in the digestive troubles of chronic disorders is well known; but the author has not used pancreatic ferments because they are rendered inert by the gastric juice in their passage through the stomach.

#### IV.—DISEASES OF THE PLEURA.

An important case of serous effusion into the pleura of eighteen months' duration, ultimately cured by free incision and drainage after repeated tappings, was brought before the Medical Society of London by S. West (*Brit. Med. Journ.*, 1895, i. 913 and 926). The patient was a lady aged thirty-one. In perfect health until September, 1891, she then began to fail, and in November the diagnosis of tuberculous ascites was made. In January, 1892, right pleuritic effusion was recognised. By March both effusions had greatly increased, but nothing was done to remove the fluid. During that year she wasted to a skeleton, and her recovery was despaired of. In June, 1893, she was seen by S. West, who found her greatly wasted, like a patient with advanced phthisis; the temperature was normal, the abdomen was greatly distended with fluid, and the right pleura was also full to



the clavicle, the heart's apex being an inch outside the left nipple line. There was a marked family history of phthisis.

Early in July about two gallons of serous fluid were removed from the abdomen, which never refilled. On July 13th the right pleura was tapped, with a needle with tube attached passing to the ground. Ninety ounces of clear serum were removed, and the lung appeared to expand freely, resonance and breath-sounds reappearing over the right side as far down as the fifth rib, and the heart's apex returning to nearly its normal position. From this point the history consists of a record of repeated tapping of the pleura and of rapid recovery of flesh and strength. In all, the side was tapped thirty-seven times from July 13th, 1893, to June 5th, 1894, and a total of 83 pints 6 ounces of fluid was removed. At the end of this time the patient had become quite fat, and looked and felt in excellent health. The fluid now seemed confined in a small pocket in the mid-axilla. The author had no doubt that in time recovery would be complete; but, having now to meet the alternative of either letting the patient go home as she was or doing something to expedite the cure, he had the side freely opened by a free incision and resection of the seventh rib in the posterior axillary line. About a pint of fluid escaped, and the lung collapsed entirely, being nowhere adherent. From this time hectic temperature set in, and the discharge gradually became purulent; rapid loss of flesh and strength occurred, until by the end of July the condition was most critical. By September, however, it was plain that the patient would do well, and she was sent home before Christmas, well and strong—weighing  $9\frac{1}{2}$  stone, as against 6 stone when at her worst. The right side was slightly contracted, the cavity was almost closed except for a track in which the tube lay, over the whole side breath-sounds were audible, and there was no definite impairment of percussion anywhere except at the base behind and in the axilla. The subsequent progress has been most satisfactory.

The case presents many features of interest. It is astonishing that the patient should have been left so long without any attempt to relieve her by tapping: this was probably owing to the persistence of the old fallacy that fluid effusions in the pleura check the progress of tuberculous disease in the lung.

The following points deserve special notice:—

(1) That after the pleura had been full of fluid for more than twelve months the lung should not be bound down, but should be capable of rapid re-expansion.

(2) That probably the pleura has not before been tapped so frequently. Under the repeated tapplings, the patient was not

only relieved of all her distressing symptoms, but rapidly gained health and strength ; and, if the patience of her friends had not become exhausted, paracentesis would probably have cured her.

(3) That after thirty-seven tapplings the fluid remained clear and serous as at the first, in spite of air having been more than once admitted into the pleura. There is no risk of converting by paracentesis a serous effusion into a purulent one if care is taken to use clean and disinfected instruments.

(4) That the pleura was freely opened for a simple serous effusion. This has but rarely been done—and rightly so, for it is practically impossible to keep the effusion from becoming purulent, as it proved in this case. As a result, the patient was reduced to death's door.

(5) That there was practically a complete *restitutio ad integrum*. This is not the least remarkable part of the case. There is now but slight external deformity, healthy breathing is heard everywhere, and there will probably be ultimately only the scar to show what has occurred. Yet the lung was completely compressed for about eighteen months, and a further period of eighteen months was spent in getting well.

F. de Havilland Hall mentioned that he had shown a case of syphilitic origin in which the chest was tapped seventeen times, with the removal of some 700 ounces of fluid. It was his rule never to allow the chest to be opened in cases of simple effusion, and the successful issue in the present instance would not lead him to alter his view. He would continue to tap as long as the fluid remained serous ; and if it became purulent it would probably be the fault of the operator.

The report of the above case led Rutherford Morison to publish a similar instance which occurred in 1882. A woman aged twenty-three came under observation with a large ovarian tumour, and with the right pleura full of fluid. She was unable to lie down on account of dyspnœa. On February 9th four gallons of ovarian fluid were drawn off ; and as the dyspnœa continued, the right side was aspirated on the 11th, 25 ounces of serum being withdrawn. During the next month the aspirations were repeated five times. At the end of this time the chest was as full as ever, and the patient was steadily losing ground from fever, night-sweats, the frequent tapplings, and inability to eat. Accordingly, on March 14th, the pleura was freely opened under the antiseptic precautions then in vogue. For five days the discharge was profuse ; but on the 6th it suddenly ceased, though the tube was not blocked, and there was a complete pneumothorax with a free external opening. Two days later the tube was removed, as there

was no discharge. The patient steadily gained ground, and a fortnight later there were no signs of any chest derangement except slight impairment of percussion-note and some weakness of breath-sound. A week later ovariotomy was performed, of which the patient died. No *post-mortem* examination could be obtained. The author remarks that he was encouraged to open the pleura by having seen Lister open and drain knee-joints with success. He has since been of opinion that an aseptic opening into the pleura is free from danger, and that the proper treatment of pleural effusions which resist a moderate amount of tapping is incision, draining, and careful dressing.

As bearing upon the subject under consideration, the special importance of this case lies in the proof which it affords that a serous effusion does not necessarily become purulent when a free opening is established ; and hence if this does occur, it is open to question whether the mode of dressing is not at fault.

In the "Year-Book of Treatment" for 1893 (p. 58) a case is referred to in which persistent serous effusion was treated by incision and drainage. The fluid became purulent within three weeks of the operation ; but in four months the cavity was closed and the patient, a middle-aged man, was restored to health.

F. Jordan (*American Journal of the Medical Sciences*, 1895, i. 81) has observed increased excretion of urine and rapid absorption of fluid following exploratory puncture in four cases of pleurisy. He afterwards observed similar results in fifteen cases, twelve of which were acute, two were chronic serous pleurisies, and one was hæmorrhagic. Gerhardt had previously made a similar observation. Jordan explains the diuresis as the result of increased absorption by the pleura caused by the traumatic irritation. The small quantity of fluid removed—1 c.c.—can hardly have a perceptible effect on the pressure. These observations correspond with those of other observers ; and there appears reason to regard the customary aspiration with the hypodermic needle as a therapeutic as well as a diagnostic measure.

# THE TREATMENT OF NERVOUS AND MENTAL DISEASES.

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IN this summary the novel points in the treatment of nervous and mental diseases as published during the past year will be considered under the following heads :—

- I.—Hypnotics, as used in bodily and mental diseases.
- II.—The Treatment of Epilepsy.
- III.—The Treatment of Tetanus.
- IV.—The Treatment of Pain, including Headache.
- V.—The Treatment of Neurasthenia.
- VI.—The Treatment of Drug Cravings.
- VII.—The Treatment of Locomotor Ataxia.
- VIII.—Miscellaneous.

## I.—HYPNOTICS, AS USED IN BODILY AND MENTAL DISEASES.

Further investigations of some of the newer hypnotics seem to show that although many of them are of service in certain conditions, yet most of them require great caution in their use. Whenever a new hypnotic is brought forward it is always stated that it produces tranquil and refreshing sleep, with absolutely no dangerous concomitant or after effects. As the drug is more extensively used, however, it is very often found that this stereotyped statement must be accepted only with great reservations. Thus we find that sulphonal and trional when given in long continued doses may produce hæmatoporphyrinuria and even death. Chloralose again, in such small doses as 3 or 4 grains, has caused dangerous coma, cyanosis, and convulsions. We cannot indeed say that we possess any harmless hypnotic, and many of the newer drugs seem to be much more dangerous than chloral hydrate or chloralamide, when these are given with reasonable care.

### I. Trional.

**Venanzio** (*Brit. Med. Journ. Epit.*, Jan. 5, 1895, p. 3) says that trional has no action on the pulse, respiration, reflexes, etc. It is superior to most of the other hypnotics, even having advantages over sulphonal and tetronal, but the author thinks it stands below chloral, which is the best hypnotic. It is not, of course, to be compared with duboisin, which is a most powerful sedative rather than a hypnotic. He gives trional in honey, mental patients taking it well in this way; the dose usually given was 15 grains, but sometimes 20 or even 30 grains. It begins to act in a few minutes, and eventually undisturbed sleep supervenes. No headache or other unpleasant symptoms were noticed after it. Trional is most useful in the insomnia of neurasthenia accompanied by depression. In some cases of excitement it is also useful.

**Goldmann** (*Therap. Monatsh.*, No. 11, Nov., 1894, p. 559) recommends this drug because of its rapid action and freedom from injurious effects on the organism. To prevent hæmatoporphyria large doses of water charged with carbon dioxide, and bicarbonate of soda should be given. It is not necessary to give more than 30 grains of the drug, and generally 15 or 20 grains are sufficient; from time to time the administration should be suspended.

**Rohmer** (*Inaug. Dissert.*, Strassburg, 1894) has found trional useful in simple insomnia, but he says it only acts slowly if pain is present; in two heart cases no bad effects followed, but caution is necessary in cachectic states.

**Galliard** (*Méd. Moderne*, May 18, 1895) relates his experience of trional in forty cases of acute disease, chronic bronchitis, phthisis, heart affections, nephritis, alcoholism, simple insomnia, and one case of morphinomania. He found its action to be almost identical with that of sulphonal, except that it was rather more prompt, no doubt because of its greater solubility. In thirty-three cases its administration was followed by sleep—sometimes for several hours, sometimes for the whole night. In five cases of phthisis it failed, also in one case of cardiac asystole and one of chronic bronchitis; it was without effect on the night-sweats of phthisis. He only exceeded a 15-grain dose in two instances, one of chronic bronchitis, and another of morphinomania; the latter indeed developed trionalomania. The drug showed no antipyretic or analgesic action. A few patients complained, on waking in the morning, of malaise, heaviness of the head, vertigo or nausea. Except in these cases the results were excellent, and no serious accident or disorder could be traced to the use of the drug.

**Spitzer** (*Wien. klin. Wochensch.*, Jan. 6, 1895) has tried trional

in a great number of cases, a dose of 15 to 30 grains being given in the early morning after several sleepless nights. He concludes:—(1) Trional is not only a hypnotic for different forms of psychoses, but acts equally well in lung (especially phthisis) and heart cases; (2) sleep is induced quickly, and continues, as a rule, on the following night; (3) some patients remain stupid with sleep even the whole of the next day, but as a rule the sleep resembles that of a normal person; (4) no bad effects on the circulation or respiration were observed in any case; (5) in isolated cases retching and even vomiting occurred on waking; this seemed to be due to idiosyncrasy; (6) the results were also excellent in insomnia due to intercostal neuralgia, rachialgia, sciatica, lightning pains of tabes, and even the pain of cancer; (7) the effects produced by the drug approached more nearly to those of morphine than of any other hypnotic.

## **2. Trional in children.**

Claus (*Intern. klin. Rundschau*, 1894, No. 45) speaks of the value of trional in the sleeplessness of children, but says it should be avoided in the insomnia of organic nervous disease, such as meningitis, etc. It is especially useful in chorea, convulsions, and in night-terrors. In a case of chorea with marked sleeplessness it had the best effect. In one case a child showed some ataxia on the morning after taking the drug, probably due to too large a dose. Trional is of little service when the sleeplessness is caused by pain. The dose used by the author was 3 to 6 grains for infants from one month to one year old, increased up to 18 or 20 grains for children from six to ten years of age. In the insomnia due to toxic influences chloral is more effective.

## **3. Poisoning by trional.**

Hecker (*Berlin. klin. Wochenschr.*, No. 36, p. 835, Sept. 3, 1894) reports the case of a woman aged fifty, who was affected with depression and insomnia, and who took each evening for thirty-six days 22 grains of trional. The walk became uncertain and vacillating, there was loss of co-ordination and memory, confused speech, loss of power of calculation, and alteration of writing. By discontinuing the remedy all these symptoms disappeared in three weeks.

## **4. Sulphonal and trional compared.**

Vogt (*Bull. génér. de Thérap.*, Nov. 25, 1894) has used trional in several cases of insomnia in neurasthenics. Usually these cases are best treated by dietetic and hygienic means, but hypnotics are occasionally necessary, and among these sulphonal and trional are the most manageable. *Sulphonal* is variable in the rapidity and manner of its action; the hypnotic effect is

directly proportional to its absorption from the intestine, and, owing to its insolubility, this may be prolonged. Hæmatoporphyrinuria has been noted from taking the drug; in such cases the urine is always acid, and Professor Müller has successfully treated this symptom by large doses of sodium bicarbonate.

*Trional* is closely akin to sulphonal, and a little sodium bicarbonate should be given during the day to those who are taking the drug. Over sulphonal it has the great advantage of being soluble, and consequently it has a prompt action; the proper hour for administration is bedtime. The dose is from 15 to 20 grains, which produces an effect in from ten to twenty minutes. Sleep lasts for six to seven hours, and is quiet and refreshing. This is an important advantage, and is eagerly looked for by neurasthenics; consequently, in a few days a complete cure of the insomnia is effected. All are not equally benefited by it; it will probably suit those who sleep easily but waken again on the slightest cause. Sulphonal is usually prescribed in a hot draught, when its effects are most marked, and the same practice may be followed with trional; solution is not always complete, but the particles floating on the surface of the liquid are only a small part of the dose. The uses of trional may be summed up as follows:—(a) Trional is preferable to sulphonal in prompter action and calm sleep, with a natural awakening; (b) the only dose is taken on going to bed, and if not successful when taken on two successive nights it may be discontinued; (c) it will only be used for a few days, consequently no intoxication with the drug need be feared; (d) the degree of acidity of the urine must always be reduced, destruction of blood only takes place when the urine is strongly acid and is always met by alkalies; (e) the constipation occasionally following its use must not be neglected, to avoid the dangers of accumulation owing to defective excretion.

**Steiner** (*Deutsch. med. Wochenschr.*, No. 13, 1895) prefers trional to sulphonal. He says the hæmatoporphyrinuria rarely following both trional and sulphonal is usually preceded by constipation and oliguria. By attention to these conditions and by the employment of alkaline mineral waters it may be prevented. Apart from this, trional is perfectly harmless, both as regards the digestive, circulatory, and respiratory functions, so that it may be given to children. The author points out the rapid action of trional (ten to fifteen minutes) as compared with sulphonal, and also its freedom from dyspeptic conditions as a sequela; 15 grains is usually a sufficient dose; an initial dose of 20 grains acts too powerfully in most instances the patients



complaining of marked lassitude on the following day. Smaller doses of the drug often produce a feeling of comfort without causing sleep. Trional should be administered in hot tea, soup, or milk, and in order to prevent a diminution of the alkalinity of the blood one or two bottles of an alkaline mineral water should be taken daily.

### **5. Action of sulphonal and trional on metabolism.**

Schaumann (*Therap. Monatsh.*, Aug., 1894) has investigated the action of sulphonal and trional on metabolism. Morphine considerably influences the metabolism and nutrition of the patient, the evil effects of its long continued use being in no small measure to be attributed to these facts. Chloral hydrate has also much the same action on the tissues. The author experimented on himself; having put himself on a given diet, and produced nitrogenous equilibrium, he was able to show that neither trional nor sulphonal, even in large doses, has any action on metabolism. Hence the superiority of these agents over chloral, especially when it is also remembered that the latter drug acts on the heart.

### **6. Toxic effects of sulphonal.**

Herting (*Allg. Zt. f. Psychiatrie*, 1894, Bd. li., Heft 1) mentions three cases in which sulphonal produced toxic effects. In the first (a woman) the evil effects were first seen after she had taken 32 drachms in 110 days. There was heaviness in the limbs, slight hebetude and stammering speech; these symptoms disappeared with decrease of the dose, but with a subsequent increase there was staggering gait, red-coloured urine, vomiting, loss of appetite, constipation alternating with diarrhœa, and then death followed. The second case was a patient, aged fifty-nine years, who in 402 days (including an interval of forty-five days) had taken 97 drachms of sulphonal. There was dark-coloured urine and slight lessening of appetite; recovery followed on the discontinuance of the drug. The third case, in which 95 drachms of sulphonal had been taken in 245 days, had somewhat similar symptoms. The spectroscopic examination of the blood confirmed Quincke's statement that the colouring of the urine is not due to hæmatoporphyrin, but to some as yet unknown colouring material.

With regard to the prescribing of sulphonal, Herting advises that the drug should be given in doses of 15 to 45 grains daily in divided doses. It may be given *per rectum* in a finely divided powder in lukewarm mucilaginous fluid.

Herting adds another case in which fatal poisoning occurred in a patient who for a long time had taken first sulphonal, then.

trional, and at last tetronal, the last in doses averaging 15 grains daily. Here, too, the urine became dark coloured. Herting conjectures that it was not the trional which caused death, but rather the deleterious influence of the sulphonal and tetronal. In this, as in another case, a livid colour of the finger nails was observed after the joint administration of sulphonal and tetronal.

### **7. Hæmatoporphyrinuria after sulphonal.**

**Oswald** (*Glasgow Med. Journ.*, Jan., 1895) reports the case of a female patient to whom had been given 2,200 grains of sulphonal, of which 1,800 grains were administered in the months of April, May, and June. In August she had abdominal symptoms, paralysis in the limbs, incontinence of urine and fæces, and she died in ten days. The urine was a deep claret colour, and the sediment contained abundant blood discs altered in shape; there was no blood as such in the urine and no bile pigment. The author points out that about forty cases have been reported in which hæmatoporphyrinuria has followed the administration of sulphonal, and over half of them have terminated fatally.

### **8. Chloralose.**

**Rendu** (*Soc. Méd. des Hôp.*, March 8, 1895) reports the case of a woman affected with chronic phthisis who took 4 grains of chloralose to produce sleep. Two and a half hours afterwards there was absolute coma, cyanosis, cold sweats, incessant spasms of the facial muscles, and epileptiform convulsions of the limbs, incontinence of urine and fæces, and a pulse of more than 200 per minute. After injections of ether and morphine the patient began to recover in two and a half hours, and was well in eight hours.

**Herzen** (*Rev. Méd. de la Suisse Romande*, No. 6, June 20, 1895) had a phthisical patient who, an hour after taking 3 grains of chloralose, presented alarming symptoms, was faint, covered with sweat, unconscious, and with a thready, uncountable pulse. In fifteen to twenty seconds there were epileptiform contractions of muscles. Ether injections restored the patient in four hours.

### **9. Chloralose in insanity.**

**Marandon de Montyel** (*Rev. de Méd.*, May 10, 1895) condemns chloralose as a hypnotic for general use in the treatment of insanity. He admits that it usually exerts a certain favourable amount of hypnotic action, but the patient very rapidly becomes habituated to the drug, which then ceases to have any effect. The only cases in which he found chloralose to be really useful were those of epilepsy complicated by insomnia. The drug then appeared not only to produce sleep, but also to the duration of the period of excitability. The dose

given was from  $3\frac{3}{4}$  to  $7\frac{1}{2}$  grains nightly until the crisis appeared to be over.

#### **10. Trional, chloralose, and somnal in insanity.**

**Chmelevski** (*Neurol. Centralbl.*, Jan. 15, 1895, p. 573) tried *trional* in the cases of thirty-three women suffering from various mental diseases, such as melancholia, mania, general paralysis, amentia, alcoholism, delirium tremens, and secondary dementia, and also in neurasthenics who suffered from loss of sleep. In the latter, sleep generally followed after a dose of 20 to 30 grains, but lassitude was present on the following morning. If neuralgia, headache, or depression are present, trional is useless, and these symptoms often increase after the use of the drug. In the insane 20 to 30 grains work well, especially if there is excitement. On the contrary, if there is depression, melancholia, or hypochondriasis, sleep is not so easily induced, and the patients are worse the next day. The remedy is not dangerous, and produces no bad effects on the digestive, respiratory, or circulatory systems. The drug should be intermitted every two or three days.

*Chloralose* was tried in thirty-two insane women suffering from much the same diseases as the above, but more chronic in nature, and also in eight sane patients. The dose usually was 6 grains to begin with, and gradually increased up to 12 grains. In ten cases the author noticed muscular contractions, trembling and convulsive movements. In several cases (unaffected with mental disease) there was incontinence of urine during sleep.

*Somnal* was used in the case of eight insane (chiefly suffering from melancholia) and eight sane patients. Sleep was produced by 80 to 100 minims. After larger doses of 120 to 160 minims sleep came on quickly, and was very deep, without any accompanying symptoms. The observation of Marandon de Montyel that somnal sleep was accompanied by pleasant dreams and erotic excitement was not confirmed.

#### **11. Trional in delirium tremens.**

**Russell Bellamy** (*New York Med. Journ.*, July 21, 1894) found that trional controlled the delirium of delirium tremens with greater rapidity and safety than other hypnotics. The drug was employed in twenty-nine cases in which the patients were so delirious that forcible restraint was necessary when they were first admitted. The treatment was commenced by giving a calomel purge and 20 grains of trional mixed in water with 10 minims of tincture of capsicum. If the condition permitted it, a very hot bath was given, and its temperature gradually lowered. The patient was then placed in bed, and restrained. If after thirty minutes the

delirium showed no sign of abatement, 10 grains of trional were given, and, if necessary, 20 grains more in another hour. As a rule sleep followed when 50 grains had thus been administered, and the pulse and respiration were stimulated. The stimulant action was attributed to the methylic and ethylic elements in the composition of the drug. The drug is well borne, and in one case was rapidly absorbed when administered by the rectum. In all the cases forced feeding was resorted to, milk, eggs, and soup being given.

### 12. Duboisin in insanity.

**Sküridin** (*Vratch*, 1894, No. 21, and *Brit. Med. Journ., Epit.*, vol. ii., 1894, p. 64) used hypodermic injections of duboisin in twenty-one cases of sleeplessness occurring in the insane, the doses varying from  $\frac{1}{150}$  to  $\frac{1}{75}$  grain, the total number of injections given being 360. In 153 (42 per cent.) instances the duration of induced sleep exceeded six hours, while in 126 (35 per cent.) it oscillated between four and six hours, and in sixty-two (18 per cent.) was under four hours; in nineteen instances (5 per cent.) the drug failed altogether. The author concludes:—(1) Duboisin will occupy a permanent place amongst hypnotics for the insane; (2) the best results may be expected in epilepsy, periodical insanity, acute mania, and mental confusion; (3) the hypnotic effect is a secondary phenomenon, developing consecutively to the subsidence of the motor or muscular excitement. Hence the drug proves most useful in insomnia caused by intense motor excitement; in sleeplessness depending on illusions, hallucinations, or organic brain disease, but unaccompanied by distinct motor disturbance, the remedy is inefficacious; (4) the drug is free from accessory ill effects.

**Massant** (*New York Journ. Nerv. and Ment. Dis.*, 1895, p. 37) considers that in the mental excitability of the insane, duboisin injected twice daily, in doses varying from  $\frac{1}{100}$  to  $\frac{1}{75}$  grain, is very valuable. The patient does not become accustomed to its use, and it not only lessens the excitement, but also induces sound and refreshing sleep. When given in larger doses, it occasionally produces disagreeable but not dangerous symptoms, such as vertigo, nausea, vomiting, syncope, tachycardia, reeling gait, and loss of consciousness, with or without twitchings of the muscles and incontinence of the sphincters.

### 13. Toxic effects of duboisin.

**Marandon de Montyel** (*Sem. Méd.*, March 6, 1895) reports twelve cases occurring simultaneously, in which duboisin caused toxic symptoms. The patients were all epileptics who had previously been treated, with favourable results, with neutral crystallised

sulphate of duboisin in doses of  $\frac{1}{70}$  to  $\frac{1}{18}$  grain, and afterwards by injections of extract of duboisin in the same dose. As the result of the use of a new tube of extract, toxic symptoms supervened. There was a quasi-drunken condition, with giddiness, vomiting, tingling of the skin, psychic and motor excitement, hallucinations, delirium, and heavy sleep. Prolonged attacks of tonic and clonic convulsions were observed; the patients were pale, but the skin was burning hot; there was abundant sweating, profuse green diarrhoea, polyuria, and frequent micturition, extreme dryness of the tongue, and intense thirst. All the patients rapidly recovered, showing that these large doses of duboisin are not dangerous to life. Montyel says it is better to use the crystallised sulphate than the extract.

#### **14. Duboisin and scopolamin in insanity.**

Chmelevski (*Neurol. Centralbl.*, Jan. 15, 1895, p. 574) tried duboisin in subcutaneous injections of  $\frac{1}{120}$  to  $\frac{1}{80}$  grain in twenty-nine cases of various mental conditions. In all the cases except one there was, in fifteen to twenty minutes, lessening of the excitement and muscular movements, abundant sleep following if the injection was given at night. The action of the drug lasted five to ten hours. No bad effects were observed even when the drug had been injected as many times as forty. In some cases epilepsy was favourably influenced when duboisin was given internally, in doses of  $\frac{1}{80}$  grain, together with bromides.

Scopolamin was used in eleven cases. The effect was almost the same as that of duboisin and no bad effects were noticed after doses of from  $\frac{1}{50}$  to  $\frac{1}{30}$  grain (smaller doses had no effect). In two cases scopolamin was used regularly, but after a few days it was necessary to increase the dose, and disagreeable phenomena followed.

## **II.—THE TREATMENT OF EPILEPSY.**

It will be seen from the following records that we seem to be as far as ever from the cure of epilepsy. Many of the much vaunted recent methods are being abandoned, and we find a steady return to the use of the bromides, given either alone or in combination. Flechzig's method of treatment by large doses of opium, followed by bromides, certainly seems to be of some service, and deserves a more extended trial.

### **1. General treatment.**

Bondurat (*New York Journ. Nerv. and Ment. Dis.*, 1894) reports the results of the medical treatment of a hundred cases

of epilepsy during three years, each case having been carefully recorded.

*Sodium borate* was given in doses varying from 45 to 120 grains a day, divided into three doses. The small doses seemed to have no effect; the larger, however, served in many cases to reduce the number of the convulsions, but exerted no marked influence on the character of the convulsive seizures, or upon the mental state of the patient.

*Acetanilid* in small doses produced no effect, but doses of from 30 to 45 grains daily caused a slight diminution in the number of attacks in almost all cases; a few cases exhibited some improvement in general mental and physical health, and in no case was any perceptible ill effect produced. *Phenacetin* gave the same results as acetanilid, but in most instances it seemed utterly inert. *Antipyrin* yielded no better results except in one case, in which it certainly seemed to be of service.

The use of  *$\beta$ -naphthol* not only gave excellent results as an intestinal antiseptic, but also seemed to exert a favourable influence on the fits, but it had no effect whatever on the mental symptoms.

As regards the *bromides*, they were tried extensively in all forms and in all degrees of dosage and method of administration. If only observed for a short time, the bromides certainly reduce the number of fits temporarily, but probably only one case in twenty will show real and permanent improvement. In the great majority of the cases the continued use of the bromides was disappointing, and in many cases injurious. For weeks or months perhaps the fits are less frequent, but there is a distinctly unfavourable change in the mental state, and often in general physical health, the patient becoming dull and fatuous. Bromide acne was troublesome in many cases, in spite of every care, and when the fits did ultimately occur they were often severe in character, and even passed into status epilepticus. Moreover, in a small number of cases the fits increased in number and severity after the bromides had been commenced.

The author thinks that the inhibition of the epileptic explosions is in most cases inadvisable; that it is far better for the patient to have a certain number of convulsions, and in the interval possess intelligence enough to care for himself, and even do some useful work, than that the number of fits should be reduced to one-half, or one-tenth, or even to zero, if at the same time the patient is made imbecile and extremely troublesome.

Of all the bromides the best results were obtained from *strontium bromide*. In the maniacal attacks the patients as a

rule do better if not drugged with hyoscin, conium, chloral, etc. Seclusion is here the best treatment.

For the relief of the serious condition known as *status epilepticus* anæsthesia by chloroform or ether, morphia, atropine, hyoscin, amyl nitrite, nitroglycerine and chloral have all been tried. The best results were given by chloral in doses of from 45 to 60 grains. In addition, venesection is of great service, and in thirteen cases in which it was used, only one death occurred.

## **2. Diet and bromides.**

Short (*Brit. Med. Journ.*, May 18, 1895, p. 1088) gives the results of treatment of fifty epileptic women who had previously been carefully observed for twelve months in order to ascertain the average number of fits. It was found that when taking occasional doses of *bromide* the average number of fits was much less when the diet contained only small quantities of animal food. With this same diet it was also found that the number of fits was less when taking bromides alone than when taking borax combined with a smaller amount of the bromides.

## **3. Bromides.**

Féré (*Rev. de Méd.*, March, 1895) speaks of the importance of continuing the bromides even in cases which are apparently cured. He instances three cases of epilepsy associated with infantile hemiplegia, epilepsy persisting from infancy, and the ordinary epilepsy of adolescence. In these cases the bromides brought about a complete suspension of the fits. After some time the drug was gradually diminished and then stopped, but the fits recurred and were again controlled by bromides. The action of the bromides consists rather in suspending the fits than in curing them. Occasionally, after prolonged treatment, patients cease to have fits for several years. When properly given the bromides are harmless, but they cannot be effectual unless they are tolerated, and they are more easily tolerated than is usually believed. Intestinal antisepsis may help to ward off unpleasant symptoms. Frequent baths are useful to prevent cutaneous complications.

## **4. Bromides and *adonis vernalis*.**

Bechterew (*Neurolog. Centralbl.*, Dec. 1, 1894) having determined by experiment that during the epileptic fit there is active cerebral hyperæmia, concluded that a drug possessing vaso-constrictor action might be useful when combined with bromides. For this purpose he selected *adonis vernalis*, preferring it to *digitalis* because of the cumulative property of the latter. After using the combination for several years, he says it not



infrequently arrests the fits at once. The addition of codeine is often useful.

### **5. Large doses of bromides and atropine.**

Moeli (*Therap. Monatsh.*, Sept., 1894) refers to the fleeting and temporary effects attained by the bromides in some cases of epilepsy, and he discusses the use of large doses, such as 180 grains a day. Various agents, such as arsenic, coffee, etc., have been added in order to increase tolerance of the bromides. Remedies such as naphthol have been used to prevent the accumulation of decomposing or toxic products in the intestine. In cases not tolerant of the bromides substitutes have to be found. Moeli has for some years made use of atropine for periods of six to eight weeks, while the bromides have been omitted. With moderate doses of atropine no ill effects have been observed. Of 260 epileptics only thirty-three were really available for this treatment. In returning to moderate doses of the bromides after the atropine course, it was observed that in one-third of the cases the number of fits became fewer. In five cases there were no fits during two, four to six months, a result never obtained during the previous bromide treatment. In five cases the value of the bromides seemed less than before the atropine was given. Curves were appended of eleven cases to show the effects of this intermittent treatment. It must be remembered that if the bromides are omitted, and no drugs given, sometimes a more marked effect is observed when the bromides are resumed, so that the increased action cannot always be attributed to the atropine.

### **6. Opium and bromides (Flechzig's method).**

Collins (*New York Med. Record*, Sept. 22, 1894) has tried the method of Flechzig in the treatment of epilepsy. This consists in giving large doses of opium for a period of six weeks (beginning with doses of 1 grain, increased until 15 grains per day are taken at the end of the first week, this quantity being kept up for six weeks). The opium is suddenly stopped, and bromide of potassium, or bromide of sodium in doses of 30 grains three times a day, is substituted; these large doses are kept up for about two months, and then gradually diminished until less than 40 grains per day are being taken. Collins tried the method in twenty cases. All these, with one exception, were benefited; little trouble was caused by the large doses of opium, but great care must be taken in watching the cases. Collins concludes as follows:—(1) The plan advocated by Flechzig is not a specific in the treatment of epilepsy. (2) In almost every case in which this plan has been tried there has been a cessation of the fits

for a greater or lesser time. (3) A relapse generally occurs in a period varying from a few weeks to a few months. (4) The frequency of fits after the exhibition of opium is, for the first year at least, lessened more than one-half. (5) The attacks occurring after the relapse are much less severe in character than those the patient has been accustomed to have. (6) This plan of treatment is particularly valuable in old and intractable cases. (7) In recent cases of idiopathic epilepsy it cannot be recommended. (8) The opium plan of treatment is an important adjuvant to the bromide plan as ordinarily applied. (9) The opium acts symptomatically, and merely prepares the way for and enhances the activity of the bromides and other therapeutic measures. (10) This plan of treatment permits the use of any other substances which are known to have a beneficial action in epilepsy.

**Stembo** (*Petersb. med. Wochenschr.*, 1894, No. 15) has treated nine epileptics by Flechzig's method. He prescribed opium in smaller doses commencing with  $\frac{1}{3}$  grain several times a day, and rising gradually in a month to daily doses of 4 to 6 grains. After a certain lapse of time he replaced the opium by bromides, which he administered for four weeks in doses of 60 to 120 grains a day. The doses were then gradually diminished until only 20 grains a day were given, and then stopped completely. The results obtained were satisfactory, the cases treated being markedly improved, if not absolutely cured.

**Holmberg** (*Neurolog. Centralblatt*, July 15, 1895, p. 647) treated a patient 14 years of age, who generally had from thirty-two to fifty-eight seizures a year, by Flechzig's method. The opium was given in the form of simple tincture, which was gradually increased until 210 minims were taken daily; this was then stopped, and 90 grains of bromide were substituted. The fits rapidly lessened in frequency, and the year following no attack came on.

### **7. Strontium bromide.**

**Roche** (*Brit. Med. Journ.*, May 18, 1895, p. 1089) reports three cases of epilepsy, in which strontium bromide combined with potassium bromide was much more serviceable than any other combination of the bromides, without the strontium salt.

### **8. Bromalin.**

**Laquer** (*Neurolog. Centralbl.*, Jan. 1, 1895) alludes to the introduction by Bardet of bromethylformin as a substitute for the inorganic bromides, the object of the substitution being to avoid the skin eruptions, foetor and other unpleasant effects so often produced by the bromide salts as commonly used. He further

directly proportional to its absorption from the intestine, and, owing to its insolubility, this may be prolonged. Hæmatoporphyrinuria has been noted from taking the drug; in such cases the urine is always acid, and Professor Müller has successfully treated this symptom by large doses of sodium bicarbonate.

*Trional* is closely akin to sulphonal, and a little sodium bicarbonate should be given during the day to those who are taking the drug. Over sulphonal it has the great advantage of being soluble, and consequently it has a prompt action; the proper hour for administration is bedtime. The dose is from 15 to 20 grains, which produces an effect in from ten to twenty minutes. Sleep lasts for six to seven hours, and is quiet and refreshing. This is an important advantage, and is eagerly looked for by neurasthenics; consequently, in a few days a complete cure of the insomnia is effected. All are not equally benefited by it; it will probably suit those who sleep easily but waken again on the slightest cause. Sulphonal is usually prescribed in a hot draught, when its effects are most marked, and the same practice may be followed with trional; solution is not always complete, but the particles floating on the surface of the liquid are only a small part of the dose. The uses of trional may be summed up as follows:—(a) Trional is preferable to sulphonal in prompter action and calm sleep, with a natural awakening; (b) the only dose is taken on going to bed, and if not successful when taken on two successive nights it may be discontinued; (c) it will only be used for a few days, consequently no intoxication with the drug need be feared; (d) the degree of acidity of the urine must always be reduced, destruction of blood only takes place when the urine is strongly acid and is always met by alkalies; (e) the constipation occasionally following its use must not be neglected, to avoid the dangers of accumulation owing to defective excretion.

**Steiner** (*Deutsch. med. Wochenschr.*, No. 13, 1895) prefers trional to sulphonal. He says the hæmatoporphyrinuria rarely following both trional and sulphonal is usually preceded by constipation and oliguria. By attention to these conditions and by the employment of alkaline mineral waters it may be prevented. Apart from this, trional is perfectly harmless, both as regards the digestive, circulatory, and respiratory functions, so that it may be given to children. The author points out the rapid action of trional (ten to fifteen minutes) as compared with sulphonal, and also its freedom from dyspeptic conditions as a sequela; 15 grains is usually a sufficient dose; an initial dose of 20 grains acts too powerfully in most instances the patients

complaining of marked lassitude on the following day. Smaller doses of the drug often produce a feeling of comfort without causing sleep. Trional should be administered in hot tea, soup, or milk, and in order to prevent a diminution of the alkalinity of the blood one or two bottles of an alkaline mineral water should be taken daily.

### **5. Action of sulphonal and trional on metabolism.**

Schaumann (*Therap. Monatsh.*, Aug., 1894) has investigated the action of sulphonal and trional on metabolism. Morphine considerably influences the metabolism and nutrition of the patient, the evil effects of its long continued use being in no small measure to be attributed to these facts. Chloral hydrate has also much the same action on the tissues. The author experimented on himself; having put himself on a given diet, and produced nitrogenous equilibrium, he was able to show that neither trional nor sulphonal, even in large doses, has any action on metabolism. Hence the superiority of these agents over chloral, especially when it is also remembered that the latter drug acts on the heart.

### **6. Toxic effects of sulphonal.**

Herting (*Allg. Zt. f. Psychiatrie*, 1894, Bd. li., Heft 1) mentions three cases in which sulphonal produced toxic effects. In the first (a woman) the evil effects were first seen after she had taken 32 drachms in 110 days. There was heaviness in the limbs, slight hebetude and stammering speech; these symptoms disappeared with decrease of the dose, but with a subsequent increase there was staggering gait, red-coloured urine, vomiting, loss of appetite, constipation alternating with diarrhœa, and then death followed. The second case was a patient, aged fifty-nine years, who in 402 days (including an interval of forty-five days) had taken 97 drachms of sulphonal. There was dark-coloured urine and slight lessening of appetite; recovery followed on the discontinuance of the drug. The third case, in which 95 drachms of sulphonal had been taken in 245 days, had somewhat similar symptoms. The spectroscopic examination of the blood confirmed Quincke's statement that the colouring of the urine is not due to hæmatoporphyrin, but to some as yet unknown colouring material.

With regard to the prescribing of sulphonal, Herting advises that the drug should be given in doses of 15 to 45 grains daily in divided doses. It may be given *per rectum* in a finely divided powder in lukewarm mucilaginous fluid.

Herting adds another case in which fatal poisoning occurred in a patient who for a long time had taken first sulphonal, then.

stiffness of the neck, difficulty in opening the mouth, or even any considerable pain at the seat of injury, coming on without apparent cause a few days after the accident, should lead us to use the remedy. As a prophylactic a small dose of 5 c.cm. would probably suffice. Local treatment (nitrate of silver 1 in 100, or iodine and potassium iodide, 1 part of each in 100 of water) must not be omitted. Free excision of the affected part may be required. The patient should be placed in a darkened room and perfect quietness be enforced. Abundance of easily digested food should be administered, if necessary, through the stomach tube during chloroform narcosis. Chloral may be given to induce sleep.

**Kanthack** (*Med. Chron.*, May, 1895, p. 92) gives an excellent critical review of all the published cases of tetanus treated by antitoxin, and sums up by saying, "It seems that the serum treatment has not actually changed the prognosis in acute and serious cases. I believe, from the accounts of cases, that in moderate cases it lessens the spasms, the pain and the distress, and that, apparently, it has reduced the mortality of such cases, but to what extent we cannot tell until we are certain that all cases are published."

## **2. Prophylactic use of tetanus serum.**

**Vaillard** (*Sem. Méd.*, Jan. 5th, 1895), after pointing out the inefficacy of antitoxin as a curative agent in any but the more slowly progressing forms of tetanus, and the necessity, even here, of removal of the nidus of infection, states that as a prophylactic it has a definite use. In animals it confers absolute immunity against the toxin, the immunity being temporary and persisting, according to the dose employed, for two to six weeks, and longer if the injection be repeated. He advises that the antitoxin should be injected as a prophylactic after any wound where there has been risk of infection.

## **3. Behring's and Tizzoni's antitoxins compared.**

**Hübener** (*Deut. med. Wochenschr.*, Aug. 16, 1894) states that Tizzoni and Cattani's tetanus antitoxin is said to possess an immunity value equal to 1 in 100,000,000, but that this number has been obtained from investigations on rabbits which have not a high susceptibility to the tetanus poison. Hübener has therefore investigated this antitoxin (as supplied by Merck) by Ehrlich's method, and concludes that the Tizzoni serum, instead of being ten times stronger than Behring's, is really three or four times weaker, and that it would not suffice for the cure of severe or late cases of tetanus, as doses of 200 to 400 c.cm. would be needed.

given was from  $3\frac{3}{4}$  to  $7\frac{1}{2}$  grains nightly until the crisis appeared to be over.

#### **10. Trional, chloralose, and somnal in insanity.**

**Chmelevski** (*Neurol. Centralbl.*, Jan. 15, 1895, p. 573) tried *trional* in the cases of thirty-three women suffering from various mental diseases, such as melancholia, mania, general paralysis, amentia, alcoholism, delirium tremens, and secondary dementia, and also in neurasthenics who suffered from loss of sleep. In the latter, sleep generally followed after a dose of 20 to 30 grains, but lassitude was present on the following morning. If neuralgia, headache, or depression are present, trional is useless, and these symptoms often increase after the use of the drug. In the insane 20 to 30 grains work well, especially if there is excitement. On the contrary, if there is depression, melancholia, or hypochondriasis, sleep is not so easily induced, and the patients are worse the next day. The remedy is not dangerous, and produces no bad effects on the digestive, respiratory, or circulatory systems. The drug should be intermitted every two or three days.

*Chloralose* was tried in thirty-two insane women suffering from much the same diseases as the above, but more chronic in nature, and also in eight sane patients. The dose usually was 6 grains to begin with, and gradually increased up to 12 grains. In ten cases the author noticed muscular contractions, trembling and convulsive movements. In several cases (unaffected with mental disease) there was incontinence of urine during sleep.

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trional, and at last tetronal, the last in doses averaging 15 grains daily. Here, too, the urine became dark coloured. Herting conjectures that it was not the trional which caused death, but rather the deleterious influence of the sulphonal and tetronal. In this, as in another case, a livid colour of the finger nails was observed after the joint administration of sulphonal and tetronal.

#### **7. Hæmatoporphyrinuria after sulphonal.**

Oswald (*Glasgow Med. Journ.*, Jan., 1895) reports the case of a female patient to whom had been given 2,200 grains of sulphonal, of which 1,800 grains were administered in the months of April, May, and June. In August she had abdominal symptoms, paralysis in the limbs, incontinence of urine and fæces, and she died in ten days. The urine was a deep claret colour, and the sediment contained abundant blood discs altered in shape; there was no blood as such in the urine and no bile pigment. The author points out that about forty cases have been reported in which hæmatoporphyrinuria has followed the administration of sulphonal, and over half of them have terminated fatally.

#### **8. Chloralose.**

Rendu (*Soc. Méd. des Hôp.*, March 8, 1895) reports the case of a woman affected with chronic phthisis who took 4 grains of chloralose to produce sleep. Two and a half hours afterwards there was absolute coma, cyanosis, cold sweats, incessant spasms of the facial muscles, and epileptiform convulsions of the limbs, incontinence of urine and fæces, and a pulse of more than 200 per minute. After injections of ether and morphine the patient began to recover in two and a half hours, and was well in eight hours.

Herzen (*Rev. Méd. de la Suisse Romande*, No. 6, June 20, 1895) had a phthisical patient who, an hour after taking 3 grains of chloralose, presented alarming symptoms, was faint, covered with sweat, unconscious, and with a thready, uncountable pulse. In fifteen to twenty seconds there were epileptiform contractions of muscles. Ether injections restored the patient in four hours.

#### **9. Chloralose in insanity.**

Marandon de Montyel (*Rev. de Méd.*, May 10, 1895) condemns chloralose as a hypnotic for general use in the treatment of insanity. He admits that it usually exerts a certain favourable amount of hypnotic action, but the patient very rapidly becomes habituated to the drug, which then ceases to have any effect. The only cases in which he found chloralose to be really useful were those of epilepsy complicated by insomnia. The drug then appeared not only to produce sleep, but also to cut short the duration of the period of excitability. The dose



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and late in the day the spasms became more marked.  $\frac{1}{2}$  grain of morphine and  $\frac{1}{30}$  grain physostigmin were now given hypodermically with great relief. On the sixteenth day the wound had cicatrised, and 1 gramme of antitoxin was given, and the spasms became less frequent. On the seventeenth, eighteenth, and nineteenth days 1 gramme, and on the twentieth  $\cdot 2$  gramme, was given, the symptoms all the time becoming less marked. On the twenty-first day the tongue was accidentally bitten, and the pain set up violent general spasms, and chloroform, morphine, physostigmin, and 1 gramme of antitoxin were given. Another gramme was given next day, and  $\frac{1}{2}$  gramme on each of the two following days. Recovery occurred in thirty-two days, 13·5 grammes of antitoxin having been given in the course of the case.

**J. Lacy Firth** (*Brit. Med. Journ.*, Jan. 19, 1895, p. 133) reports a case of an infant in whom tetanus commenced on the eighth day of life. Four injections of antitoxin were given—namely, one on the eighth day, two on the ninth ( $\cdot 4$  gramme being used on each occasion), and one of  $\cdot 8$  gramme on the tenth day. The total quantity used was 2 grammes. The bottle containing the antitoxin had been opened two months previously, but had been sealed with wax and kept in a cool and dark place. No improvement of the symptoms occurred after the injections had been given.

**Matteucci's case** (*Rif. Med.*, Apr. 22, 1895) was that of a man who, apparently as the result of a chill, was suffering from tetanus. Tizzoni injected 30 c.cm. of antitoxin (of 1 to 10,000,000 immunising power) eight days afterwards. The next day the patient was better, but an eruption of urticaria followed. A similar dose was injected each day for the next three days, with steady improvement, and in a fortnight the patient was well.

### **5. Chloroform in tetanus.**

**Prëobrajensky** (*Brit. Med. Journ., Epit.*, 1895, p. 24) relates four cases of acute tetanus treated by chloroform inhalations which were repeated once to thrice a day, the daily dose of the drug varying from 2 to 4 drachms. In addition hot baths and subcutaneous injections of morphine were occasionally employed. Three of the patients recovered, one died from supervening catarrhal pneumonia on the seventeenth day of the primary disease. In all the cases the inhalations induced muscular relaxation, while the breathing became deep and regular, and the pulse stronger and slower. The patients could be fed during the early stage of the narcosis, which also secured a quiet sleep of several hours' duration.

sulphate of duboisin in doses of  $\frac{1}{70}$  to  $\frac{1}{18}$  grain, and afterwards by injections of extract of duboisin in the same dose. As the result of the use of a new tube of extract, toxic symptoms supervened. There was a quasi-drunken condition, with giddiness, vomiting, tingling of the skin, psychic and motor excitement, hallucinations, delirium, and heavy sleep. Prolonged attacks of tonic and clonic convulsions were observed; the patients were pale, but the skin was burning hot; there was abundant sweating, profuse green diarrhoea, polyuria, and frequent micturition, extreme dryness of the tongue, and intense thirst. All the patients rapidly recovered, showing that these large doses of duboisin are not dangerous to life. Montyel says it is better to use the crystallised sulphate than the extract.

#### **14. Duboisin and scopolamin in insanity.**

Chmelevski (*Neurol. Centralbl.*, Jan. 15, 1895, p. 574) tried duboisin in subcutaneous injections of  $\frac{1}{120}$  to  $\frac{1}{80}$  grain in twenty-nine cases of various mental conditions. In all the cases except one there was, in fifteen to twenty minutes, lessening of the excitement and muscular movements, abundant sleep following if the injection was given at night. The action of the drug lasted five to ten hours. No bad effects were observed even when the drug had been injected as many times as forty. In some cases epilepsy was favourably influenced when duboisin was given internally, in doses of  $\frac{1}{80}$  grain, together with bromides.

Scopolamin was used in eleven cases. The effect was almost the same as that of duboisin and no bad effects were noticed after doses of from  $\frac{1}{50}$  to  $\frac{1}{30}$  grain (smaller doses had no effect). In two cases scopolamin was used regularly, but after a few days it was necessary to increase the dose, and disagreeable phenomena followed.

## **II.—THE TREATMENT OF EPILEPSY.**

It will be seen from the following records that we seem to be as far as ever from the cure of epilepsy. Many of the much vaunted recent methods are being abandoned, and we find a steady return to the use of the bromides, given either alone or in combination. Flechzig's method of treatment by large doses of opium, followed by bromides, certainly seems to be of some service, and deserves a more extended trial.

### **1. General treatment.**

Bondurat (*New York Journ. Nerv. and Ment. Dis.*, 1894) reports the results of the medical treatment of a hundred cases

## 2. Analgesic mixture for external application.

Sabbatin (*Journ. des Praticiens*, July 13, 1895) has found the following liniment useful: menthol and guaiacol, of each one part; absolute alcohol, eighteen parts. About one drachm is to be used at a time, and this is to be rubbed in lightly, especially over the painful points, and the part is afterwards to be covered with cotton-wool. The liniment should not be used more than twice or three times a day.

## 3. Neurodin.

Lippi (*Il Policlinico*, Feb. 15, 1895) has tried neurodin, which was introduced by Von Mering (*Therap. Monatsch.*, 1893, p. 582) in fourteen cases, including patients not suffering from pain (in order to determine the limit of tolerance of the drug), and also in patients suffering from various forms of pain, such as neuralgia, angina pectoris, rheumatism, etc. He draws the following conclusions:—(1) Neurodin may be given in doses varying from  $7\frac{1}{2}$  to 45 grains; these doses are effective and well borne, and may be repeated several times a day; (2) these doses are perfectly harmless, and produce no other ill effect except occasional diarrhoea with or without intestinal pain; (3) hardly any physiological effects were noticed; (4) as regards the analgesic action of the drug, it was found to have the property of soothing and even of abolishing pain, whether neuralgic in character or symptomatic of an organic affection; its action, however, is uncertain and notably inferior to that of other similar remedies, such as phenacetin or antipyrin. It is, moreover, not readily soluble.

## 4. Tolysal.

Bothe (*Münch. med. Wochenschr.*, Aug. 7, 1894) relates his experience with tolysal as an anodyne. It is a derivative of tolypyrin. He has used it in the insane, in the headaches of neurasthenia, hysteria, and chronic brain disease. In neurasthenic headache he has found it very useful, and even when antipyrin was without effect. The hysterical headache was sometimes influenced and sometimes not. In one case of true migraine it promptly cut short the attack, but in another case it was useless. In the headache of organic brain disease, of bone disease, or of old rheumatism it was used without effect. In insomnia of the insane without excitement it was of service. The dose is from 18 to 30 grains, 15 grains being insufficient. It has a disagreeable taste, but is readily taken in hot soup or beer. In the empty stomach it may produce nausea. Vertigo was sometimes noticed, but it does not occur

if the recumbent position is maintained. The author thinks that tolusal is deserving of further investigation.

### 5. Salophen.

De Buch and Vanderlinden (*La Flandre Méd.*, Nov. 29, 1894) speak of the value of salophen as an antineuralgic and analgesic remedy. It is a salicylate of acetylpara-amidophenol, and contains 50 per cent. of salicylic acid. It is a white crystalline, inodorous, tasteless powder of neutral reaction, insoluble in cold water, feebly soluble in warm water, soluble in alcohol and ether. It passes unchanged through the stomach, without causing any irritation. In the alkaline bile it is decomposed into its constituents, which are quickly absorbed. The authors record ten instances of its analgesic powers, which are not thoroughly manifested till doses of 45 grains and more are reached.

## V.—THE TREATMENT OF NEURASTHENIA.

### 1. General treatment.

Savage (*Brit. Med. Journ.*, Sept. 8, 1894, pp. 522-525) says neurasthenia is more a disease of function than a disease of tissue. It is more commonly found in the anxious-minded than merely in the overworked. It is a condition which depends to some extent on inability to repair after action, and this depends to a great extent on the sensory side of the nervous system. In the treatment of neurasthenia rest is essential, and in many cases rest in bed in the early stages. Travelling is often harmful, though sometimes useful. If there are no delusions, the Weir-Mitchell treatment is very good, but it must be carried out away from home. Arguing with the patient is useless; assertion is better than reasoning. Muscular work is very good, such as carpentering or golf. If not able to send the patient away altogether, send him away for the week-ends. Baths are of little use, except perhaps the Turkish bath once or twice a week. No definite diet is of any special service. Coca wine taken with a biscuit at night is often useful if sleep is bad. A cup of milk, with or without brandy, given on waking in the early morning, or a hot bath taken shortly before going to bed, is often useful in securing a full night's rest.

Savage, finally, quotes Cowles of Massachusetts (with whom he agrees) as follows:—"Each case must be made a separate study. The objective and subjective symptoms must be treated. We must aim at the elimination of waste products through the bowels, kidneys, and skin—through the bowels rather by diet than by purges; by hot water, mineral waters, hot-water

enemata, abdominal massage, and regular habit. Fruit of some kind is useful. Kidney action should be promoted by free flushing, as by abundance of skimmed milk. As some cases depend on uric-acid diathesis, this should be dealt with. The action of the skin is best promoted by exercise in moderation; gymnastics are not very good, but fencing may be indulged in. In women menstrual irregularities must be treated. The diet must be simple, consisting at first of milk, and then fish and meats are added. Koumiss has been given in some cases with benefit, and extract of meat with port wine. Food should be given at regular intervals not exceeding four hours. On waking early some fluid food should be given, or sometimes a few grapes. Exercise should be short of fatigue, and should be taken with some companion. In the treatment of sleeplessness hypnotics should be avoided as much as possible. Food should be given—stimulants, coca wine, hot baths, small doses of chloral or paraldehyde. Sulphonal is perhaps the least harmful hypnotic."

## **2. Alcohol, maltine, and coca wine in neurasthenia.**

Græme M. Hammond (*Journ. Nerv. and Ment. Dis.*, New York, Nov., 1894) says that in many cases of neurasthenia the digestive organs fail to perform their functions properly, either because the digestive juices are not secreted in their proper proportion or else chemical changes in their composition diminish or interfere with their activity. He says the free use of alcohol is always more or less injurious to the normal individual, but it is particularly so to neurasthenics, in whom a free indulgence in wines aggravates the headache, increases the insomnia, induces more indigestion, and augments the general feeling of discomfort. But, on the other hand, small quantities of alcohol given with the heaviest meal frequently assist a feeble digestion and dissipate, at least for a time, the depression and confusion of mind. Hammond thinks the wine of coca is the best, as it seemed that the tonic and stimulating effects of coca on the nervous system, together with the gastric stimulation from the small quantity of alcohol, had generally a very beneficial effect. It is even better to give maltine with the coca wine, as this materially aids the digestion of starchy foods.

## **VI.—THE TREATMENT OF DRUG CRAVINGS.**

### **1. Strophanthus in dipsomania.**

Skworzow (*Journ. de Méd. de Paris*, No. 41, Oct. 14, 1894) notes three cases of dipsomania treated with strophanthus, with

surprising results. They were patients in whom the attack lasted three to six weeks. In one case, after the first administration of strophanthus in 7-minim doses of the tincture, the attack was immediately cut short. In the two other cases the attack was cut short after the third dose. At first the patients experienced nausea and a wish to vomit without being able to do so. Two or three minutes later a febrile reaction comes on, which is terminated by copious sweating. These unpleasant symptoms quickly disappear, and with them the longing for alcohol; the sight of it even provokes intense disgust. Cutting short an attack in this way is not attended with any nervous symptoms. The author confesses himself unable to give any explanation of the result, and recommends further investigation.

## **2. Duboisin in morphinism.**

Bernabee (*New York Journ. of Nerv. and Ment. Dis.*, Jan., 1895, p. 3) reports the case of a man who injected 3 to 5 grains of morphine daily, and presented all the symptoms of chronic morphine poisoning. All remedies, including hypnotics, were tried without effect, but duboisin injected daily in doses of  $\frac{1}{250}$  to  $\frac{1}{125}$  grain succeeded in a short time in curing the craving.

# **VII.—THE TREATMENT OF LOCOMOTOR ATAXIA.**

## **1. The influence of syphilis in tabes dorsalis.**

Cardarelli (*Gazz. degl. Osped.*, May 18, 1895) says that possibly a third of the cases of tabes may be of syphilitic origin. Ataxia coming on twenty or thirty years after primary syphilis, and not preceded by any decided syphilitic manifestations during this time, is probably not syphilitic. So-called syphilitic ataxia has no definite characteristics of its own, such as belong to cerebral syphilis. Anti-syphilitic treatment, as a rule, does more harm than good in tabes, and in any case in which this form of treatment did no good in fifteen to twenty days the author thinks it useless to persevere with it. On the whole, Cardarelli thinks that the importance of syphilis as a cause of tabes has been greatly exaggerated.

## **2. Treatment of lightning pains in tabes.**

Blondel (*Rev. de Thérap.*, April, 1895) treated a case of tabes dorsalis in a man of twenty-nine years of age, with a syphilitic history, who suffered from intolerable lightning pains, as follows:—The patient lay on a bed with the thighs flexed on the abdomen, so that the knees approached the chin, the legs being flexed as much as possible at the same time; a cord, passed round



the neck and under the knees, enabled the patient to maintain this position for five minutes. This was repeated every night for five nights, when the pain disappeared. A similar treatment was successful when the pains returned in a month.

## VIII.—MISCELLANEOUS.

### 1. **Astasia-abasia and its treatment.**

Friedländer (*Neurolog. Centralbl.*, 1894, p. 354) looks upon astasia-abasia (difficulty of standing and walking) as hysterical, and due to an inhibition of association in the transmission of the conception of movement into voluntary motion. He considers that it should not be treated by hypnotism, but by gymnastics. He begins by moving all the joints of the legs passively, with the patient in the lying position, then lets the patient make active movements to which he opposes gradually increasing resistance in order to enhance the motor power. These exercises are continued for weeks, until rather strong resistance can be overcome. Then the same exercises are performed in the sitting position; here, chiefly resistance to flexion of the hips and to extension and flexion of the knees. Subsequently the same exercises are gone through in the upright position, the patient supporting himself by taking hold of the backs of two chairs, between which he stands. The next trial is to stand without support; when the patient has succeeded in this, preparatory exercises for walking are made; both feet are put alternately forwards and backwards, the thighs are flexed on the hip, then the leg extended, and the knee and foot flexed and extended. When the patient has learned to make these movements with sufficient strength and without support for several minutes, he can be persuaded to make the first trial of walking. About twenty minutes should be spent daily in the exercises, and on an average good results will be achieved in from two to three months.

### 2. **Hyoscyamin in mercurial tremor.**

Bruyer (*Thèse de Paris*, Nov. 14, 1894) says that of all agents employed for mercurial tremor hyoscyamin is the best. It appears to act by lessening the congestion of the nerve centres. It ought to be given continuously in a weak dose of  $\frac{1}{16}$  grain a day. Even if the complete cure be not effected, the tremor is so much improved that the patient is able to continue his work.

# DISEASES OF THE STOMACH, INTES- TINES, AND LIVER.

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THERE is nothing startling to announce this year in the treatment of diseases of these organs, but nevertheless the management of them has continued to improve, for it is becoming common knowledge that many patients can be saved from death by surgical interference, and that many others are better treated by the general principles of rest and simple diet rather than by the administration of a multitude of drugs.

Of text-books, the most important is that by **Sidney Martin** on "Diseases of the Stomach." This is the only English book which gives a discriminating and accurate account of the later foreign work on the pathological chemistry of the gastric secretion, and everyone wishing to be abreast of the times should read it. The author shows very well that it is not in all cases necessary to make a chemical examination of the gastric contents, an error into which some Continental authors have fallen. Other writers, too, are beginning to insist upon this, as, for instance, **Bourget** (*Therapeutische Monatshefte*, 1895, Nos. 5 and 6). We do not wish to underestimate the importance of accuracy in the examination of the gastric contents in obscure cases or in original investigations, but we also do not think it necessary in simple cases of indigestion to subject the patient to the annoyance of test meals and artificial emptying of the stomach. Of the many other points of interest in **Sidney Martin's** book, one that struck us particularly was the suggestion that perhaps gastric ulcer was due to a bacterial necrosis.

Another text-book deserving particular mention is that by **Herbert P. Hawkins** on "Diseases of the Vermiform Appendix." This is the best account yet published of these diseases. It is a book which it is a genuine pleasure to read, and it contains a most impartial account of the vexed question of the propriety of

operation. There is no doubt that an abscess in connection with the appendix should always be opened, except in the rare cases in which it is not accessible, or when by opening it the general peritoneal cavity would be flooded with pus (see some cases in the *Practitioner*, November, 1895). The value of operation for acute general peritonitis due to appendicitis is more doubtful, for although the cases usually die if left to themselves, recovery after operation is rare. Excision of the appendix for relapsing typhlitis should be undertaken between the attacks, and the doctor should set before the patient that the disease will probably recur, and that each attack will incapacitate him for a short time and bring with it the risk of abscess or general peritonitis, although this risk diminishes with each successive attack. On the other hand, no operation is absolutely free from risk, and sometimes the appendix cannot be found.

Among general articles, that by **Perry and Shaw** (*Guy's Hospital Reports*, vol. i.) on "Diseases of the Duodenum" is the most noteworthy. It is an account of many hundreds of cases in which at the *post-mortem* examination this part of the body was found to be diseased. It is too long for abstraction here, nor does it bear particularly on treatment, but it is by far the most important contribution to diseases of the duodenum which has yet been made, and no one can be said to have studied this subject properly unless he has read this article.

Another very elaborate paper is that by **Herter and E. E. Smith** (*New York Med. Journ.*, vol. li., Nos. 25, 26; vol. lii., Nos. 1, 2 and 3) entitled "Observations of Excessive Intestinal Putrefaction." The authors have attempted to find out whether there is any relationship between intestinal disorders and the excretion of ethereal sulphates in the urine. While they find that in many cases there is an increase of these sulphates—especially indican—when the patient is suffering from intestinal disorders, they have not been able to formulate any propositions which will be of much service at the bedside. But, in spite of this, their work is so thorough that their article is of great importance, and is much more than a mere confirmation of the well-known fact that indicanuria is often seen in sufferers from intestinal disorders.

The greatest advance that has been made of late years in the treatment of the diseases under question has been surgical, and the most brilliant results have been obtained in the operations for appendicitis to which we have already referred, in operations on the gall-bladder for gall-stones, about which there is nothing new, to relate this year, and in operations for gastric ulcer. These fall into two divisions: those for free perforation into the

general peritoneal cavity, and those done to open the pus- and air-containing abscess which forms at the upper part of the abdomen, usually under the left side of the diaphragm, when the perforation has taken place into adhesions around the ulcer.

The successful cases of operation for free perforation are now numerous, and there is no doubt that whenever such a perforation has occurred, the operation must be undertaken at the earliest possible moment. It is not yet decided whether it is best always to excise the ulcer or simply to bring the edges of the perforation together. Two very interesting cases were brought before the Clinical Society (*Clin. Soc. Trans.*, vol. xxviii.) by L. A. Dunn. In one the perforation had been successfully stitched, and the patient was doing well, when some days after she had symptoms so exactly resembling those of a second perforation that the abdomen was reopened, but no perforation was found; in the other case the perforation was so minute that it was not discovered at the time of operation, although it was seen at the autopsy. In such a case it would be an advantage to distend the stomach with gas at the operation. On the same evening Silcock related two cases; in one, on opening the abdomen, the perforation was found closed by adhesions which were not interfered with, and the patient recovered.

Many successful cases of operation for abscess in connection with a perforated gastric ulcer have lately been recorded. The chief point that awaits decision is whether it is wise to open them from the abdomen or through the pleura, making thereby an artificial empyema.

It is still undecided whether the pylorus should be excised for malignant disease. Most authorities had come to the conclusion that it should not; but lately the *technique* of the operation has improved, and Murphy's button may facilitate it. There is no doubt that in certain cases of pyloric stricture a gastro-jejunostomy is of great value. We ourselves have seen it lead to immense improvement in a case of non-malignant stricture. For further details of operations on the stomach, and for the rarer operations, such as splitting the pylorus longitudinally, which belong more to surgery than to the present article, we would refer to the surgical article in the present volume, and to an article by Mintz on the "Surgical Treatment of Diseases of the Stomach" (*Zeitschrift f. klinische Med.*, Bd. xxv., Heft 1 u. 2).

### **1. A new quantitative test for free hydrochloric acid in the gastric contents.**

Toepfer (*Zeitschrift f. physiologische Chemie*, Bd. xix., Heft 1, 1894, p. 114) describes this. To 10 c.cm. of gastric filtrate 3 or 4

drops of a 0·5 per cent. alcoholic solution of dimethylamidoazobenzene are added. If free hydrochloric acid is present, the mixture becomes red. It is then triturated with a decinormal sodium hydrate solution until it turns distinctly yellow. The number of cubic centimetres of the sodium hydrate solution employed for 100 c.cm. of gastric filtrate multiplied by ·00365 gives the percentage of free hydrochloric acid present. **Friedenwald** (*Medical Record*, April 6, 1895) strongly recommends this as a simple and accurate quantitative test. He also advises, as an ordinary test for free hydrochloric acid, filter paper dipped in dimethylamidoazobenzene and allowed to dry.

## **2. The early diagnosis of cancer of the stomach.**

**Manges** (*Medical Record*, April 27, 1895) believes that the improvements in the operation of excision of the pylorus have now rendered that operation justifiable in certain cases, and that therefore an early diagnosis is of very great importance. He quotes Leube as saying that the onset of symptoms is often sudden, and the patient may have previously been in very good health. (See an important paper by **Schüle**, *Munch. med. Wochenschrift*, No. 38, 1894.) Loss of appetite and repugnance to food are also often seen quite early in the history of the case, and occasionally vomiting is a striking symptom. Diminution of weight is of great importance. Other early signs are absence of free hydrochloric acid, of pepsin, and of the rennet ferment. He also includes among early symptoms the loss of the motor power of the stomach, but it should be borne in mind that this is very difficult to estimate. The presence of lactic acid in the stomach contents he regards as a very important early sign, and he thinks Uffelmann's test the best, for that of Boas is too complicated for general use. Uffelmann's test consists of adding some carbolic acid (strength 1 in 60) and a drop of perchloride of iron to the gastric contents, when if lactic acid is present a canary-yellow colour will be produced. It is recommended by Boas, and also by **Fleischer**, that before the acid is added the contents of the stomach should be shaken up with ether, and that after the perchloride of iron has been added they should again be shaken; then if lactic acid is present the lower layer will assume a canary-yellow colour. We have tried this and found it useful. **Manges** found a considerable quantity of lactic acid present in twenty out of twenty-one cases of gastric carcinoma; **Ewald** found it in twenty-two out of twenty-four. **Straus** found lactic acid in only five out of 129 non-malignant cases. Lastly, **Manges** draws attention to the fact that in cancer of the stomach the gastric contents often contain swarms of long immobile, thread-like bacilli, while *sarcinæ* are rarely seen.

### **3. The diagnosis between benign and malignant pyloric obstruction.**

Einhorn (*Medical Record*, Jan. 9, 1895) contributes a useful paper. He believes that when the obstruction is due to a benign tumour the duration of the illness is long, ranging from two to fifteen years, there are long intervals without any symptoms, complete recovery is possible, and no tumour can be felt. On the other hand, if the obstruction is due to malignant disease of the pylorus, the duration of the illness is short, ranging between five and eighteen months, there are no periods of good health, the severity of the symptoms gradually increases, and a tumour can be felt in most cases. He considers that much attention should be paid to an examination of the gastric contents, and says that if the obstruction is not malignant free hydrochloric acid is usually present, lactic acid is usually absent, the total acidity is always increased, the rennet ferment is always present, and the odour of the gastric contents is unpleasant. But if the pyloric obstruction is malignant, then free hydrochloric acid is nearly always absent in the gastric contents, lactic acid is always present, the total acidity is diminished, the presence of the rennet ferment is variable, and the odour is often very foetid.

Much attention has lately been directed to the kind of acid present in the gastric contents in cases of gastric carcinoma, and, as a result of having read the opinions of many authors and examined several cases ourselves, we would say that, although free hydrochloric acid is not invariably absent in cases of gastric carcinoma, and may occasionally be absent in other conditions, it is so much more often absent in gastric carcinoma than in any other disease that if in any case it is constantly absent, this may be regarded as a sign of considerable weight in confirming a diagnosis of gastric carcinoma. Again, free lactic acid is so rarely seen in the gastric contents, unless the patient be suffering from gastric carcinoma, and is so frequently met with when he is, that its presence is of value as helping to confirm this diagnosis if other symptoms lead us to it.

### **4. On the treatment of non-malignant stricture of the pylorus.**

Ogston (*Lancet*, March 23, 1895, p. 739) advises that the patient should swallow spheres of gutta-percha. The best time to swallow one is the first thing in the morning, and no very hot food, which might soften the gutta-percha, must be taken. These spheres float easily in the gastric contents, and they are found in the fæces; they are made in sizes like those of the French catheter scale, and it is convenient sometimes to have one intermediate

between two catheter sizes, say between 20 and 21. The size of the sphere is chosen according to the kind of food the patient can take. Thus if he can only take liquid and pulpy foods he must begin with a sphere smaller than 10 on the French catheter scale. It is best always to begin with a small one, and if no discomfort is caused, to use a bigger one next morning ; and it is known when an effective size has been reached by its causing cramp-like pains in the stomach within twelve hours of being swallowed. Usually the pains come on in six hours. They are due to the sphere being passed through the pylorus, and they cease suddenly. Having found a suitable size, then at intervals of five days the next largest sphere is used. The treatment is slow. In one case it took 810 days to dilate the pylorus from 16 to 40 millimetres in circumference. Dilatation up to No. 40 is all that is required.

### **5. An apparatus for washing out the stomach or the sigmoid flexure with a continuous current of water.**

Hemmeter (*New York Med. Journ.*, March 30, 1895) describes a very simple and efficacious apparatus. The tube that passes into the stomach has a partition across its interior. This partition is a little to one side of its diameter, so that the tube is divided into two unequal portions. Through the smaller of these water flows into the stomach and out again through the larger. Outside the mouth of the patient the ingoing division of the stomach tube leads by a separate tube to a receptacle of water on a shelf above the patient, while the outgoing division is connected with a tube which leads to a basin which is on a lower level than the patient's stomach, and which receives the gastric washings. Hemmeter strongly recommends the use of this apparatus for washing out the sigmoid flexure in cases of membranous colitis. The patient is placed on his back and the buttocks are elevated very high. The bowel should be washed out with plain water once or twice a week.

### **6. Tetany associated with chronic dilatation of the stomach.**

Soltan Fenwick (*Clinical Society's Trans.*, vol. xxviii.) has collected much information on this rare association, and has described two cases which came under his notice. Tetany is a very serious complication of gastric dilatation, for about three-quarters of the patients suffering from it have died. Usually the dilatation is due to a chronic ulcer in the neighbourhood of the pylorus. The tetany is nearly always ushered in by severe vomiting. The author believes that the best results of treatment are to be



obtained by frequent washing out of the stomach either with plain water or some innocuous antiseptic solution.

### **7. The movements of the stomach.**

Much has been written on this subject at various times ; but our knowledge of the movements of the human stomach is very scanty, and even when the organ is much hypertrophied the ease with which the movements can be seen must depend much upon the thickness of the abdominal wall. Hemmeter (*New York Med. Journ.*, June 22, 1895) has, however, described an ingenious instrument for directly recording them. It consists of a thin indiarubber bag, which, when collapsed, is introduced into the stomach. It is then blown out to the size of the organ, and by means of a rubber tube is made to record the gastric movements on a recording drum. This is ingenious ; but the obvious criticism is that the gastric movements are hardly likely to be normal when the muscular layers are contracting on a large rubber bag.

### **8. Galvanisation of the stomach and intestines.**

Brock (*Therapeutische Monatshefte*, June, 1895) gives full directions for this procedure. The patient first drinks two glasses of lukewarm water, then the stomach electrode is passed down the œsophagus and is connected with the negative pole, while the positive is connected with a flat electrode placed over the lower part of the vertebral column. The strength of the current is 15-20 milliampères, and the duration of sitting five minutes. The author tried a series of sittings on several patients suffering from various functional gastric disorders, nearly all of whom were women. Of thirteen cases, 15 per cent. were cured, 46 per cent. improved, and 39 per cent. were uninfluenced. To galvanise the intestines, the bladder was first emptied and then the intestinal electrode was introduced into the rectum, which had previously been washed out with about 200 c.cm. of a physiological salt solution. This electrode was connected with the negative pole, and the positive was connected with a broad electrode placed on the epigastrium. The patients treated in this way were chiefly women who suffered from chronic constipation : 46 per cent. were cured, 23 per cent. improved, and in 31 per cent. no good resulted. Each patient was galvanised thrice a week. This article gives a very good account of the literature of the subject.

### **9. The action of bicarbonate of sodium on the gastric secretion.**

Linossier and Lemoine (*Bull. gén. de Thérapeutique*, Dec. 15, 1894). These authors have reinvestigated this much-disputed

question, and they find that the immediate action of bicarbonate of sodium on the gastric secretion is stimulating, whatever may be the dose employed, and that this action is most marked when the drug is given about an hour before meals; therefore in practice it is best, when we wish to aid digestion, to give moderate doses before meals. If too large doses are given the stimulating effect is so quickly replaced by a depressing influence that more harm than good is done, for the quantity of gastric secretion soon becomes diminished, the excess of bicarbonate is more than enough to counteract the acidity of the gastric juice, and consequently the gastric contents become alkaline. The physician often desires in cases of hyperacidity to diminish the acidity of the secretion, and then large doses of bicarbonate of sodium should be given some time after meals, and the administration should be prolonged. The authors find that the dose varies very much in different individuals, for the effect produced by any given quantity of the bicarbonate necessarily depends upon the degree of acidity and quantity of the gastric secretion. These conclusions also apply to natural bicarbonate of sodium waters. Our readers will notice that these results are borne out by the every-day experience of clinical medicine. Of the other authors who have investigated the question we may briefly refer to the following, because the results differ from those of the majority of investigators.

Reichmann (*Therap. Monatshefte*, March, 1895), as the result of many experiments, doubts whether bicarbonate of sodium has any effect on the amount of gastric secretion; he admits, however, that clinically it is beneficial, and he attributes this to its power of neutralising the acidity of the secretion of the stomach, and to a tonic effect on the gastric mucous membrane. Some authors think that the prolonged use of alkalies is distinctly harmful; but, on the other hand, it must be remembered that there are many instances on record of patients having taken enormous doses daily for many years without any evil effects.

#### **10. The influence of meat broth on the functions of the stomach in a healthy man.**

Kozminykh (Thèse de Saint Pétersbourg, 1895; abstracted in *Rev. des Sci. Méd.*, July 15, 1895, p. 33) says he has proved that meat broths increase the secretion of the gastric juice, the power of absorption, and the motility of the stomach. By this means the action of the gastric juice on foods introduced at the same time as the meat broth is greatly aided. These results are of considerable clinical value, as they confirm our previous knowledge of the utility of a little soup before a meal, and the advantage of

beef-tea and broth to patients whose digestive powers are lowered by a severe illness.

### **11. On the use of bichromate of potassium in gastric affections.**

Bradbury (*Lancet*, Sept. 14, 1895) has tried this drug and comes to the conclusion that it is often useful in chronic dyspepsia when other medicines have failed. Its mode of action is quite unknown. He gives  $\frac{1}{8}$  to  $\frac{1}{12}$  grain thrice a day on an empty stomach. It must be remembered that bichromate of potassium is very incompatible, and therefore it is best given in a pill made up with kaolin to prevent explosion, or in a capsule, or in simple solution with some flavouring agent. The author prefers, on the whole, to give it in capsules. We have tried it in a few cases, and have certainly seen patients who have derived benefit from it.

### **12. Sterilisation of milk.**

Carter (*Lancet*, April 20, 1895) begins his article by pointing out that the easiest way to sterilise milk is to boil it in soda-water bottles and plug the mouths with sterilised cotton-wool. But, as he says, the objection to this method is that some patients cannot digest boiled milk well, and, further, it is doubtful whether it is as nutritious as unboiled milk. Pasteur has shown that if it is kept at 131° F. for a short time this prevents it from turning sour; while a temperature of from 151° to 158°, maintained for five minutes, destroys all spore-bearing micro-organisms in milk. Carter recommends Waldstein's apparatus. This consists of a vessel with three concentric walls, with two spaces between the three walls. The outer space is filled with boiling water, the inner contains air. Into the vessel itself a sort of cruet frame is put, containing bottles full of milk, and plugged with sterilised cotton-wool. The vessel is filled with boiling water up to the necks of the bottles. The lid is then put on the vessel, which is placed in an oven at such a temperature that the milk remains not lower than 160° F. for an hour and a half. The cruet frame is then taken out and plunged with its bottles into cold water. Carter finds that milk thus sterilised is very useful for infantile diarrhoea, gastric ulcer, and typhoid fever.

### **13. The value of sterilised milk.**

There is a very good critical discussion (*Annales de l'Institut Pasteur*, April and May, 1895) on the value of sterilised milk and on its digestibility, for it has been maintained that sterilisation renders milk difficult of digestion, because the micro-organisms usually present in it aid its digestion, while others have contended that they retard its digestion, and others have stated that, as far as its digestibility is concerned, it is a matter of

indifference whether or not it is sterilised. Probably in the case of adults the sterilisation is not a matter of very great importance, unless, indeed, the milk be contaminated with disease germs, such as those of typhoid fever, scarlet fever, or diphtheria. With infants, however, sterilisation is often a very great advantage; but here again no definite rules can be laid down, for it is the experience of every doctor that occasionally a child will take some variety of milk, and apparently digest it, although the infant does not gain in weight, while on another variety, which it does not appear to digest any better, it thrives at once.

#### **14. The treatment of morning diarrhoea.**

**Delafield** (*New York Med. Record*, May 11, 1895) describes the form of diarrhoea which worries some persons during the morning, and he advises a change of climate and a milk diet. Should the patient object to milk, he should be confined to meat or meat and milk only, and starches and sugars are especially to be avoided. If any drug is required, the author advises 5-minim doses of castor oil.

#### **15. Milk diet in the severe intestinal diseases acquired in the East.**

**Thin** (*Brit. Med. Journ.*, Feb. 9, 1895) points out that when patients cannot take ordinary milk, aërated milk is frequently of great value. (*See Brit. Med. Journ.*, 1893, vol. ii., p. 12 and p. 64.) The mere bulk of the milk—for some patients require six or eight pints a day—often produces distension and flatulence. In such cases the author advises evaporating the milk below boiling-point to half its bulk. While this is being done it should be constantly stirred. He finds evaporated milk is also useful for those patients who cannot take much milk.

#### **16. Chronic dysentery of more than four years' standing cured by rest in bed and a milk diet.**

**Hale White** (*Lancet*, July 6, 1895) records a case which illustrates the importance of a strict milk diet. He believes that often the treatment of severe intestinal disorders is too active, and that the great principle of giving an inflamed part rest is neglected. He says that the best way to keep the bowels quiet and free from irritation is to keep the patient in bed and give nothing but milk in small quantities at frequent intervals, say every two hours. If undigested curds are passed, the milk may be peptonised, and if its taste is very disagreeable, it may be flavoured with a dash of coffee. If this treatment leads to constipation, four to eight ounces of olive oil thrown up the rectum every third day will give relief. The patient whose case is described had been in England four and a

quarter years, suffering from dysentery contracted abroad. He had been to many physicians, who had given him all sorts of drugs, but complete and prolonged rest in bed on a milk diet had never been tried. When seen by the author the bowels were open four or five times a day, and the motions contained much mucus and blood. The patient was very wasted, yellow, and anæmic. He was kept absolutely on milk for four months; he was then allowed a little custard, and a month after that a little bread and butter; at the end of these five months he was allowed to get up a short time, and six and a half months after the treatment began he was sent away into the country. He first passed a formed motion a month after he was first put to bed, and the blood and mucus entirely disappeared shortly after formed motions were passed. As the patient was, to begin with, restricted to two pints of milk a day, he lost weight; but this, provided he does not get too weak, is of little importance in comparison with the benefit that follows the rest to the colon. Thirteen months after the treatment began he went back to his business, which is arduous. He was in perfect health, which he was enjoying when the case was published some months afterwards.

#### **17. Carbonic acid gas in dysentery.**

**Rose** (*New York Med. Journ.*, March 9, 1895) has used this remedy for dysentery for eleven years with very good results. The carbonic acid gas is generated in a pint bottle with a wide mouth, and through the cork passes a glass tube connected with a rubber tube attached to a rectal tube. The bottle is a third filled with water, and the glass tube reaches a little below the level of the water. Six drachms of sodium bicarbonate are put in, then half an ounce of tartaric acid, and the bottle is at once closed. The gas, which does not go beyond the ileo-cæcal valve, may be allowed to pass up until there is a feeling of distension, and the dose may be repeated thrice daily.

#### **18. Rectal feeding.**

**Singer** (*Brit. Med. Journ.*, April 13, 1895) does not think that the addition of salt to an enema containing albumen, such as egg, is necessary, but he regards peptonisation as very important; still, there is no harm in putting a little salt. The best way to make an egg enema is to take six eggs, 6 grammes of common salt, 200 cubic centimetres of 0·15 per cent. solution of hydrochloric acid, and 5 grammes of pepsin. Keep the mixture for ten hours in a warm chamber. Two enemata of this mixture may be given twice daily. Another good nutrient enema is milk 125 grammes, wine 125 grammes, yolk of two eggs and a little peptone, three or four times a

day. The rectum should in all cases be washed out occasionally, and if there is much tenesmus, 8 or 10 minims of the tincture of opium may be added to each enema. Often patients fed by enemata suffer from excessive thirst. This is best treated by giving a little tincture of opium in water by the mouth.

### 19. Colitis.

Several letters and articles on this subject have been published in the *Lancet* during the last twelvemonth. Two letters appeared on December 15, 1894, and January 5, 1895, asking for information about the disease. In answer to these letters **Hale White** (*Lancet*, March 2, 1895) pointed out that while the colon is affected by a number of well-understood diseases, as dysentery, tuberculosis, cancer, and anthrax, and, in the *post-mortem* room, follicular and distension ulcers, and ulceration in association with Bright's disease and pyæmia, are seen; besides all these there are three forms of colitis of clinical interest—viz. simple colitis, membranous colitis, and ulcerative colitis. The chief symptom of the first is diarrhœa; the motions contain much mucus, and sometimes small, but often large, quantities of fluid blood, and very little fæcal matter. The onset is usually sudden. There is nearly always pain over the colon, and there may be slight fever. Rest in bed and small quantities of milk at frequent intervals usually result in complete recovery, and drugs are generally unnecessary. The symptoms of membranous colitis are well known, but treatment is very unsatisfactory. No drugs have any certain effect. The body and mind must be kept in the best general health possible, and serious attempts must be made to check the bad habits in respect of diet and constipation into which these patients have always fallen. In severe cases it may be justifiable to open the colon on the right side high up and let the fæces pass through the artificial anus for a time, and when the colon has been sufficiently rested to close the artificial anus. The symptoms of ulcerative colitis were next described. Probably in this disease treatment is of little avail. Absolute rest in bed, slop diet, opium and hot fomentations are most likely to afford the best chance.

**Skene Keith** next wrote (*Lancet*, March 9, 1895) a letter in which he said that he had done the operation of opening the colon high up for membranous colitis, and he promised that the case should be published in detail later.

### 20. Therapeutic value of olive oil in gall-stones.

**Troitzky** (*Revue de Méd.*, No. 90, p. 515) observed a case in which there was a fistulous communication between the gall-bladder and the exterior. He found that when he gave

olive oil, castor oil, oil of mustard, cod-liver oil, glycerine, or salicylate of soda the secretion of bile was more abundant than normal. He supposes that in those cases of gall-stones in which the administration of olive oil appears to be of benefit the extra quantity of bile raises the pressure behind the gall-stones, and thus forces them on, and that this action is aided by increased peristaltic movements of the bile-ducts. The author appears to be unaware of the interesting experiments published by Brockbank in the *Medical Chronicle* for December, 1893, which showed that outside the body olive oil could dissolve gall-stones, and it would have been of great interest if he had stated whether olive oil given by the mouth was excreted in the bile.

### **21. Acute intestinal obstruction from gall-stones.**

**Eve** (*Clin. Soc. Trans.*, vol. xxviii.) gives a very complete paper on this subject, and he comes to the conclusion that when a diagnosis of obstruction by a biliary calculus is possible, expectant treatment (namely, the administration of belladonna or opium and rectal feeding) is indicated if considerable distension of the abdomen is not present. Should these measures fail, operation should not be long delayed. The abdomen should be opened, and if the stone occupies the lower part of the ileum and is movable, an attempt should be made to push it through the ileo-cæcal valve, for when in the large intestine it will almost certainly be passed naturally. Should it be impossible to get it through the ileo-cæcal valve, or if it be immovable, the procedure will depend upon the state of the intestine. If this be healthy and easily accessible, the stone had better be excised and the intestine sutured. If it is inflamed and œdematous the stone should be broken up with a needle; and lastly, should this be impracticable, the stone with the intestine around it should be excised together.



# DISEASES OF THE KIDNEYS, DIABETES, ETC.

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## SYNOPSIS.

THE contributions to renal and urinary therapeutics are very meagre this year, though some very interesting observations have been placed on record. Sir John Williams's paper in the *Practitioner* on Puerperal Albuminuria and Convulsions not only draws attention to a form of eclampsia in which a general state of blood-poisoning is the first factor, whilst the albuminuria is secondary, but shows the good effects to be obtained by prompt and repeated venesection. Similar expressions in favour of the abstraction of blood in cases of acute uræmia, by **Sapellier** and **Reynault** respectively, will be found in §§ 4-5. For the treatment of saccharine diabetes **Samuel West** has reported three cases fully, and others less closely observed, clearly showing that uranium nitrate has a distinct sugar-restraining influence, especially in those cases that are most affected by diet. **Solomon Solis-Cohen**, on the other hand, has found benefit from the administration of strontium bromide. **Monin** advocates permanganate of potash, especially in mild forms of gouty and constitutional diabetes, though it may also prove useful in the nervous and pancreatic forms. It is probable that these powerful mineral salts, with which arsenic may no doubt be included, owe their sugar-restraining power to their inhibitory effect on amylolytic and proteolytic action. **Grube's** suggestion as to the beneficial effect of the administration of lime salts in diabetes is a valuable one. Pea-nut flour is a new diabetic food, introduced by **Stern**. An interesting case is reported by **Robert Lee**, in which the thirst and diuresis in a case of diabetes insipidus disappeared during a pyrexial attack. This fact has been observed with regard to the disappearance of sugar in the case of diabetes mellitus, but has not been clearly established with respect to the superflux

of water in the insipid form. A contribution deserving study is that by Henley on the treatment of uric acid gravel, in which he insists on the importance of distinguishing whether the deposit is caused by defective solubility, or by actual excess of uric acid excreted, and of basing our treatment on those lines. He also opens up the question as to whether sugar is injurious or not to gouty patients.

## I.—ALBUMINURIA.

### 1. Venesection in puerperal albuminuria and convulsions.

Sir John Williams (*Practitioner*, Jan. 1895), in a comprehensive paper on Puerperal Albuminuria and Convulsions, remarks that one party of theorists maintains that all puerperal convulsions are due to renal disease, whilst another holds, on the contrary, that renal disease is not the cause of the convulsive manifestations. To those in favour of the renal origin, the objections that may be raised Sir John Williams considers unanswerable, and these are: that convulsions may occur in the absence of albumen in the urine, and that in many fatal cases of puerperal convulsions, disease of the kidneys may be absent or quite insignificant; moreover, puerperal convulsions are comparatively rare in persons the subjects of chronic Bright's disease prior to the occurrence of pregnancy. Williams then states that we may have convulsions arising during pregnancy from intra-cranial disease, true epilepsy manifesting itself for the first time, or epileptic attacks appearing once only, called forth by the irritation of the over-sensitive nervous system of the puerperal woman caused by the contraction of the uterus. These last may truly be called puerperal convulsions. Then there are the cases occasionally met with in the subjects of chronic Bright's disease. With these the present paper does not deal; but with a third, a more severe and grave form—a form which is sudden in its onset, rapid in its progress, and generally fatal in its issue. In the great majority of cases, such puerperal convulsions are associated with albuminuria, though Williams does not believe that the albuminuria, even when present in a severe form, is the whole of the disease nor the whole of the condition giving rise to the convulsions. Of this form he quotes two important cases. In the first, there were convulsions, albuminuria, slight jaundice; in the second, there were the same symptoms, terminating fatally, and, therefore, an opportunity for an autopsy was afforded. In this case the kidneys were found in the first stage of acute Bright's disease, the liver enlarged and presenting vacuolated cells. The condition

thus presented by the liver could only be the result of severe contamination of the blood. The question arises: What is the relation of the convulsions to those conditions of liver and kidneys? Are they the effect of one or both? Or are they the direct effect of the pregnancy upon a sensitive nervous system? Or are they the indirect effect of the pregnancy acting through impaired blood? To these questions Williams has no answer but this: That there are strong reasons for believing that the albuminuria is not the sole cause. The disease is far more complicated than the first stage of Bright's disease. Then convulsions are rare in chronic Bright's disease, and more so in simple acute nephritis, so much so that their occurrence has been called in question. When they occur in albuminuria it is in that which follows acute specific disease, especially scarlet fever, and in that which comes on during pregnancy. In scarlet fever it may be a safe inference to admit that the blood is tainted by scarlet fever poison, whilst in pregnancy, though the form of the poison has not been hinted at, it may be inferred that a poison is present from the conditions found after death. The point of interest, however, lies in the fact of relief afforded—decided, at least, in one of the two cases—by venesection. This patient, who in two previous pregnancies had had premature labour induced on account of puerperal convulsions and albuminuria, was subjected to repeated venesections, the effect of which was, that on each occasion the eclamptic symptoms were completely and immediately relieved—less perfectly on the second than the first attempt—but within twenty-four hours the albumen had disappeared entirely from the urine on the first and second occasions. Relief on the third, and a diminution, but not disappearance, of the albumen for a shorter period. Relief again on the fourth, but only for twenty-four hours. The complete relief on the first and second occasions appears to point to something else than acute renal mischief, and the less effect produced by bleeding on the third and fourth occasion is of interest. The effect of venesection on the urine is also of interest, for the analyses of Ralfe show that, although it contained a large quantity of albumen, yet the urinary constituents otherwise were not much diminished in it. The quantity of urea during twelve hours after bleeding was increased, while the amount of urine secreted during that time was diminished. The increase of urea amounted to  $1\frac{1}{2}$  gramme in the twenty-four hours. After bleeding, the pulse became soft, large, and quicker, and the countenance natural, the arterial tension was relieved, and the albumen disappeared. This would point to

something giving rise to previous arterial tension, which probably gave rise to the albuminuria. In the second case, which proved fatal in twenty-four hours, venesection was only once resorted to. Before the bleeding the pulse was hard and small, but became softer during the bleeding. The patient also looked better, and became less unconscious. The effect on the urine was that before the bleeding it contained tyrosin, and leucin, and blood casts, and was solid with albumen; one hour and a half after venesection it yielded three-quarter parts of albumen with the same microscopic appearances. Jaundice was very marked in this case.

[In attributing these "*foudroyant*" cases of puerperal convulsions with albuminuria to some blood-poison affecting the system generally, causing a condition much resembling acute yellow atrophy, Sir John Williams has thrown a new light on a very perplexing subject, but it may be doubted whether he is right in altogether ignoring the part played by pregnancy in the induction of puerperal nephritis. It may be one of degree, that the general blood infection is so strong as to require immediate relief by the induction of premature labour, or prove fatal before renal changes have advanced; or, what is more probable, there is a distinct form of puerperal nephritis, which runs a different course. In the cases alluded to by Williams disappearance of the albumen follows on the expulsion of the fœtus. But there is a class of case, by no means uncommon, in which examination of the urine before pregnancy, or during the first month, shows no trace of albumen, when about the fourth or fifth month it occurs with a tendency to dropsy, though not with convulsions, though there may be uræmic manifestations. This class of case seems to differ from those brought under notice by Sir John Williams in that the albumen does not disappear with the birth of the child. There may be an improvement, but the case runs the course of an ordinary nephritis, and only improves under the usual hygienic and dietetic regulations enforced in such cases.—C. H. R.]

## **2. Albuminuric retinitis of pregnancy.**

**P. Silex** (*Berliner klin. Wochensch.*, May 6, 1895), after describing the usual appearances met with in ophthalmoscopic examination, proceeds to consider their clinical and prognostic value. Even with the presence of albuminuria, it is often difficult to tell whether the changes are due to Bright's disease, acute nephritis, or "pregnancy kidney"; perhaps with the last hæmorrhages are more frequently met with. In pregnancy the disturbance of vision comes on slowly in the course of weeks and months, mostly in

primiparæ and in the latter half of pregnancy, usually concurrently with the albuminuria, except in some few cases when it may appear first. Once the affection occurs, relapses are frequently met with in later pregnancies, each relapse rendering the prognosis more grave, though of all forms of albuminuric retinitis that of "pregnancy kidney" is the most favourable. Vision may return to the normal if the pregnancy is terminated either naturally or artificially. Those cases which show no alteration in the blood-vessels, and in which no change in the vessel reflex exists, terminate most favourably. Otherwise, if the changes in the reflex are visible or the vessels show the ligature transformation in the walls, then atrophy of the retina, as well as ascending atrophy of the optic nerve, may be feared. Silex maintains that with only moderate impairment of sight the inducement of premature labour should be considered.

### 3. Diet in Bright's disease.

In a review of this important subject, Bradford (*Practitioner*, September, 1895), remarks that the question of what diet is the most suitable in the various forms of Bright's disease has been, and still is, a much-debated point. If Bright's disease is looked upon as a primary inflammatory affection of the kidneys, articles of diet possessing diuretic properties will probably be avoided. If uræmia is considered to be due to failure on the part of the kidneys to excrete nitrogenous extractives, there will be a tendency to diminish as much as possible the quantity of proteid food, especially in chronic forms of the disease. Hirschfeld (*Zeits. f. Krankenpflege*, May, 1895), discusses the various diets suitable in this disease, and considers that the albuminuria is the point of first consideration, and that no article of diet should be permitted that causes positive increase in the amount of albumen excreted. Not only does he declare that an increased proteid in the food is followed by an increase in the albuminuria, but, in addition, there are increased amounts of nitrogenous extractives to be excreted, and thus more strain is thrown on the damaged kidneys, with a consequent increased tendency to uræmic symptoms. This, however, is contrary to the opinion expressed by Hale White (*Med.-Chirurg. Trans.*, vol. lxxvi.), who states that in his experience an ordinary full diet does not increase the liability to uræmia. Hirschfeld would give about 6 ounces of meat 13 ounces of bread, 1½ ounce of sugar, 5 ounces of fat, with a liberal allowance of vegetables and fruit, as a typical diet for a patient with chronic Bright's disease. Milk may be given in three ways: (1) in small quantities from two to three pints daily, as a starvation diet by which the work of the kidneys is reduced to a minimum; (2) in

larger quantities of four to eight pints daily ; (3) in moderate quantities in addition to the mixed diet ordered above.

#### **4. Treatment of Bright's disease.**

Sapellier (*Bull. gén. de Thérap.*, Nov. 30, 1894) considers that medicines are only of secondary importance, and that hygiene, especially the hygiene of the alimentary tract, is the chief and best of therapeutic measures to be taken. Whenever there are acute symptoms or a marked exacerbation of the disease the patient should be put to bed, and sleep only in flannel. Patients should be careful not to expose themselves to the morning and evening air, even in southern climates, and in summer they should not visit the seashore. They should be rubbed with gloves made with horsehair every morning over the whole body. Warm and vapour baths are not advisable, on account of the chance of chill. If it is not necessary to keep the patient in bed, and there is no œdema, moderate exercise, short of fatigue, may be permitted. Bicycling must be prohibited. If walking is not possible, then massage should be used. Tobacco should be prohibited, since, if it does not act on the kidneys, it does upon the heart. Milk, the author insists, is the food and medicine above all else in Bright's disease. It should constitute the sole food during acute exacerbation, and the chief constituent at other times. It can be taken either cold or hot, and the amount should not exceed two and a half quarts a day. It should be injected in small quantities about every two hours, and slowly swallowed. If the case improves, much of the milk may be replaced by cream, egg flip, bread soups, vermicelli, meal mixed with milk, stale bread or crackers ; but should a relapse occur, the patient must return at once to the diet. When the acute symptoms have subsided for some time the regimen may then be extended to *purées* of all farinaceous materials, all fluids, all green vegetables, prepared with butter and milk, eggs (yolks), stewed fruits, bread, and crackers. The drink should be milk—from two to three quarts a day—but if milk cannot be taken, then hot water, or aromatic infusions, such as Paraguay tea, or even ordinary tea. When a further improvement takes place the diet may be made more liberal by the addition of white meats to the vegetarian diet. Alcohol he condemns, though beer may be permitted. Liqueurs and all strong alcoholic drinks are, however, to be positively forbidden. With regard to drugs, the author would retain digitalis, caffeine, theobromine, and perhaps the iodides, with the addition of revulsives and venesection. Our first duty, after prescribing a milk diet, is to carry off the toxins in the system by means of a purgative. Saline purgatives, he finds, are not well tolerated, and he prefers the use of scammony in capsules

in doses of seven and nine grains. Whilst relief is being obtained through the intestine, counter-irritation should be applied to the lumbar region over the kidneys (*vide* § 5) in the form of sinapisms, wet or dry cups, or light touches with the actual cautery. With the onset of acute symptoms—uræmia, dyspepsia, convulsions, coma—bleeding should be resorted to. Fourteen ounces may be drawn with great relief, and the withdrawal of a considerable quantity of the uræmic toxin is the result. If the heart is weakened, the hypodermic injection of caffein is indicated; the following solution is suggested:—Caffein., Sodii benzoat. āā glxxv. Aquæ 3vjs M. Inject of this subcutaneously 15 minims, *i.e.* 4 grains of caffein at each injection. If there is œdema and the heart dilated, digitalis is indicated.

### 5. Treatment of uræmia.

Reynault (*Annales de Méd.*, March 14, 1895) points out the anastomosis existing between the blood-vessels of the loin and those of the cortex of the kidney, and therefore greatly prefers abstracting blood from the loin by leeches to wet cupping. To increase the circulation in the kidney the heart must be stimulated, for which purpose he administers every fourth day 0·001 gramme of crystallised digitalin. Inhalations of oxygen aid in oxidising the retained toxic products in the blood. During the acute attack he advises subcutaneous injections of ether, not only as a cardiac stimulant, but also as fortifying the nervous system against the action of the toxic agents of uræmic origin.

### 6. Methyl blue in Bright's disease.

Loewenthal (*La Méd. Mod.*, March 9, 1895), with a view of testing the efficacy of this drug in the treatment of acute nephritis, administered it in twelve cases in capsules containing  $\frac{1}{3}$  grains of methyl blue, one capsule three times a day. The urine acquired a blue tint shortly after the first dose, which increased in depth on its continuance, and which persisted for some days after its discontinuance. The drug increased the diuresis, and œdema disappeared after eight days of treatment, and ascites in about ten to twenty days. The albumen in the urine diminished, and finally disappeared. The drug was well borne by the stomach, except in two cases in which it was taken early in the morning. It had no disturbing effect on the respiratory and circulatory systems. It caused no headaches, and sleep was reposeful. When uræmia occurs, Loewenthal suggests the subcutaneous injection of the drug.

### 7. Progress of chronic nephritis.

Von Ziemssen (*Deutsch. Archiv f. klin. Medicin*, Bd. 55, p. 81) relates the progress of a case of nephritis in which the patient,



after being under observation for four years, eventually improved in general health, and was able to return to work. At first the case presented the clinical aspects of ordinary subacute nephritis, and later of interstitial change. From this he concludes that there are many cases of nephritis that take a favourable course. He believes that in these cases only a part of the kidney may be affected; and, though it is difficult to recognise these favourable cases in the outset, he thinks that a study of the blood-pressure and of the hæmoglobin may help us to a conclusion.

[The case mentioned by Von Ziemssen is quite in accord with the expressed opinion of English physicians, that many cases of Bright's disease run a comparatively mild course, and so long as ordinary care is taken as regards diet, exposure to cold, and avoidance of fatigue, live many years. Well-known instances are recorded of many who in their youth suffered either from catarrhal or scarlatinal nephritis some twenty, even thirty, years ago, who then had well-marked albuminuria, hæmaturia, and dropsy, who are still living, and some even engaged in arduous professional work, in whom, although the urine is often free from albumen for long periods at a time, we find traces after overwork, or if they get run down. One case seen by Dr. Murchison in 1874 was that of a man of forty, who was then suffering from parenchymatous nephritis, and who, after wintering in the south of France two years, returned greatly improved, a trace of albumen only being perceptible in the urine. He then married, and had children, and has since busily engaged in municipal business, and now, after twenty years, enjoys fair health, though there is always a trace of albumen perceptible in the urine; and there is little doubt that interstitial changes are slowly taking place in the kidneys. The fact is, owing to the earlier detection of albumen, since the systematic examination of the urine has been in practice, our views with regard to prognosis have become modified. No doubt, also, the various causes which lead to interstitial nephritis have their influence on the evolution of the disease, some proceeding more rapidly than others. Whilst Ziemssen suggested that only part of the kidney may be affected, the practical outcome, as regards therapeutics, is to eradicate as far as possible the exciting cause: gout, syphilis, alcoholism, etc., and prevent fresh exacerbations destroying a further portion of the renal tissue.--C. H. R.]

### **8. Cardiac hypertrophy in diseases of the kidneys.**

Dominicis (*Wiener med. Wochenschrift*, Nov. 17 to Dec. 1, 1894) relates the results of experiments made on animals to determine the relations existing between cardiac hypertrophy and

renal disease, with a view of clearing up many doubtful points. He found that ligature of both renal arteries in dogs speedily caused death, just as if both kidneys had been removed; but if only one artery was tied the animals remained in good health for three or four months, but then grew thin, without, however, showing changes in any organ. As regards the heart, no increase of force or rate could be detected by the cardiograph or by palpation. The urine showed slight albuminuria after the first five days of the ligature, which afterwards passed away. At first the amount of urine passed was diminished, and then there was polyuria. The solids in the urine were, however, diminished. This was specially notable with regard to uric acid. No casts were observed.

*Necropsy.*—The kidney of the ligatured artery showed degeneration of the epithelium and interstitial nephritis, whilst the kidney of the unligatured artery only exhibited the latter condition. Dominicus concludes that idiopathic hypertrophy of the heart may occur without renal disease, and extensive lesions of kidneys may be induced experimentally without producing any effect on the heart or giving rise to such a general condition as is found in Bright's disease. The occurrence of cardiac hypertrophy with renal disease must be regarded as the result of a common poisoning of the blood.

[These experiments prove little beyond what has been established clinically. The destruction or removal of one kidney is not, as a rule, followed by any functional or organic change in the heart, and the remaining kidney often remains serviceable for many years, unless it becomes subject to the same disease that caused the destruction of its fellow or led to its removal. A young woman in whom the left kidney was removed for tubercular disease eight years ago is still living, apparently in good health, without any sign of cardiac hypertrophy or renal trouble except the occasional passage of small uric calculi from time to time. A more extensive investigation and a thorough review of the facts already known are required before the very contradictory views that are held as to the relationship of cardiac hypertrophy to the various forms of Bright's disease can be harmonised or the relationship explained.—C. H. R.]

## II.—DIABETES.

### 9. Uranium nitrate in diabetes mellitus.

Samuel West (*British Medical Journal*, August 24, 1895) reports three cases, together with others not so systematically observed, which prove, he thinks, that in uranium we have a drug which

has a powerful effect on diabetes. In two of the cases the amount of sugar was very largely influenced by the diet, and it is quite possible that uranium may be found most useful in this class of case, on account of its action upon digestion. That the effect, however, is clearly due to the drug is shown by the fact that, when dieting had produced all the improvement possible, a still further improvement took place on the administration of the drug, leading in one of the two cases to the entire disappearance of sugar from the urine for a considerable time. In another case almost the same thing occurred; whilst in the third case, in which the patient had been treated with a variety of drugs, especially codeia, the administration of uranium was followed by a great improvement. Other careful observations also prove that the uranium was instrumental in the improvement that took place. With regard to its mode of action, West remarks that at present we can do little more than speculate, but he thinks it likely that its action is due to the effect it has in checking the rapid digestion of starch and some forms of albumen. Since experimental investigations have shown that even in small quantities uranium and its salts have an inhibitory action on amylolytic and proteolytic action, so that a 1 per cent. solution of uranium nitrate prevented the action of ptyalin, and a rather larger quantity that of pepsin and trypsin. With regard to the dose, we must bear in mind that the salt is an irritant poison, yet West has given as much as 10, 15 and 20 grains, thrice daily, without any trouble being produced. But the best plan is to commence with a small dose—two or three grains twice daily, after the chief meals. This dose should be freely diluted with water; the quantity may then be gradually increased till its effects are produced.

[From the extremely accurate and exhaustive analyses that accompany Dr. West's paper no other conclusion can be arrived at but that uranium nitrate may be added to the list of drugs that are known to influence sugar excretion. Among these arsenic has hitherto held the first place, probably from a similar inhibitory effect on amylolytic and proteolytic action. In some observations on the action of arsenic on diabetes at the London Hospital I found in many cases a very marked fall in the excretion of water and sugar. It is interesting, however, that the most successful case was one rapidly progressing, in which the most strict diet had ceased to regulate the excretion of sugar, though arsenic had a marked effect on other cases; but the very decided action the arsenic salt (bromide) had on that one case, which was not influenced by diet, suggests the possibility that uranium may prove serviceable in the class of cases which are still influenced by

carbohydrate diet, and arsenic in those cases in which the sugar still continues to be excreted in spite of the most rigid restriction. In short, uranium has, perhaps, a larger influence over amylolytic action than arsenic, whilst the latter has a greater effect on proteolytic.—C. H. R.]

#### **10. Strontium bromide in diabetes mellitus.**

**Solomon Solis-Cohen** (*International Clinics*, vol. iv., series iii., 1894) advises strontium bromide in 30-grain doses thrice daily. He also gives lævulose in 1-ounce doses daily. The strontium salt seems to be of most use in gouty and obese patients.

#### **11. Permanganate of potash in diabetes mellitus.**

**Monin** (*Progrès Méd.*, vol. i., p. 265) asserts that permanganate of potash exerts an alterative action upon the liver cells and regenerates the hæmoblasts. He combines it with maté, which is trophic and neurosthenic. These powerful remedies, however, have proved efficacious only in mild forms of gouty and constitutional diabetes, though they may also be found useful in nervous and pancreatic diabetes.

#### **12. Lævulose in diabetes mellitus.**

**Saundby** (*International Clinics*, vol. iv., series iii., p. 78) records the case of moderately acute diabetes in a boy of fourteen, to whom from an ounce to an ounce and a half daily of lævulose was administered. There was no increase of the sugar in the urine, while the patient gained in weight, improved in general health, and appreciated the addition to his diet. **Hale White** (*Guy's Hospital Reports*), referring to the experiments of Minkowski on dogs rendered diabetic by extirpation of the pancreas, showing that lævulose and inulin are largely stored up in the organism of the animals experimented on, and only in part excreted as sugar, has used the treacle-like substance known as lævulose, and inulin in the form of dahlia tubers which contain about 10 per cent. of this material. The tubers should be boiled about four hours. The quantity of lævulose given was about 200 to 1,800 grains daily. Of this he found that the lævulose was excreted in part, whilst the total amount of sugar was always increased, though not proportionately, from which he infers that some of the lævulose was retained and utilised. In no case did harm occur, whilst in some gain of weight and general improvement of health followed. Dextrose and cane-sugar, when administered, though sometimes not followed by bad results, often did harm.

#### **13. Influence on diabetes of lime salts.**

**K. Grube** (*Münchener med. Wochenschr.*, 1895, No. 22) relates that a young Englishman who had been under treatment for diabetes, on the advice of a working man, took a full teaspoonful

of powdered egg-shell daily, and though the amount of sugar excreted remained unchanged his general health improved. Instead of this cumbrous preparation Grube proposes a powder consisting of ninety-three parts of carbonate and seven of phosphate of lime, and has already treated one patient with satisfactory results. It is well known that in most cases of diabetes excessive excretion of lime salts is a marked feature, often, indeed, preceding the appearance of sugar in the urine. This drain no doubt causes much of the muscular weakness in the disease, and may explain why milk, which contains so large a proportion of lime salts, is often by some authorities considered useful as an addition to the dietary. [The administration of the more soluble hypophosphates of lime has proved very satisfactory in many cases of extreme debility, and would probably prove quite as efficacious as the more solid form, whilst more agreeable to the patient.—C. H. R.]

#### **14. Bread substitute in diabetes.**

**R. T. Williamson** (*Brit. Med. Journ.*, vol. i., p. 922) advises the use of aleuronat, which can be obtained from R. Hundhausen, Hamm, Westphalia. This, mixed with equal parts of desiccated cocoanut-powder (2 ozs. each), with one egg, and a little water sweetened with a saccharin tabloid, is divided into cakes and baked.

#### **15. Pea-nut flour as a diabetic food.**

**H. Stern** (*Med. News*, June 8, 1895) points out that pea-nut ower (*Arachis hypogæa*) is one of the cheapest food-stuffs known, containing as it does a large amount of fatty and nitrogenous matters, and little carbohydrate—in fact, 49 per cent. of the former, 29 per cent. of proteids, and only 14 per cent. of the latter. The author gives directions for preparing the pea-nut flour to render it palatable and also to remove all saccharine elements. The flour thus purified may be used in the form of porridge with milk; or it may be used in a most palatable form as the German pancake. Bread and biscuits can also be baked from it.

#### **16. Pancreatic diabetes.**

**Vaughan Harley** (*Med. Chronicle*, August, 1895, p. 321) gives a very succinct account of the knowledge of the so-called “pancreatic diabetes,” and contrasts the effects of the experimental disease in animals with cases of diabetes, associated with pancreatic disease in man. He has endeavoured to bring out the fact that, whilst experimental pathologists do not regard all cases of diabetes mellitus as pancreatic, disease of the pancreas even may be present and yet no diabetes occur, so long as a portion of gland tissue remains capable of carrying on its function in a comparatively normal manner.

**17. Diabetic coma.**

**Hirschfeld** (*Münchener med. Wochenschrift*, April 23 and May 14, 1895), in a discussion which took place at Berlin at the Society of Physicians, remarked upon the frequency with which diabetic coma followed operations on aged diabetic subjects—more particularly those necessitated by gangrenous affections. This coma might occur, no doubt, under many other conditions, but it was frequently impossible to determine the exact cause to which it was due. The coma observed after operations has been attributed to chloroform, from its weakening effect on the contraction of the heart. Whether this was so, it was better to be on the safe side, and in diabetic subjects to use ether instead of chloroform as an anæsthetic. Diabetic coma, he remarked, was associated with the presence of acetone, and the appearance of this body in the urine must be regarded as of grave import. When coma was once established treatment was of no avail. Injections of alkaline salts having no effect, we are mainly reduced to a prophylactic treatment. **Karewski** was of opinion that in aged diabetic persons with gangrenous affections symptoms are frequently mistaken for coma which, in reality, are due to septicæmia. In a case of so-called diabetic coma the question arises, What part is played in its production by arterial lesions, by septicæmia, and by glycosuria respectively? Injections of alkaline solutions he thought of value only at the onset of diabetic coma; if they do not save, they may prolong, life. **Stadelmann** deemed that alkaline injections were inefficient since diabetic coma was the result of an acid intoxication. This acid is produced in the body in variable quantities, but if it exists in excess it is a proof that there is not enough alkali in the body to neutralise it. Therefore, alkaline injections are called for. It must not be forgotten, however, that injections of enormous quantities are required—a proceeding which is not attended with any inconvenience to the patient. The injection by the stomach of large quantities of alkaline fluids is also required. For this purpose he employs a saturated solution of sodium bicarbonate, with citric acid added to deprive it of the carbonic acid, to which is added saccharin and a little fennel water. This mixture, which contains 15 grains of sodium bicarbonate in 150 grains of the vehicle, is given three or four times a day, with the same quantity of soda water, till the urine becomes alkaline. **Klemperer** did not regard acid intoxication as the cause of coma; he considered the marked destruction of albumen as more important. In other diseases with great destruction of albumen, coma occurs without the accumulation of acids in the organisms. The administration of alkalies was without influence on the course of the coma; still

it had some importance in other respects in the treatment of diabetes. He would endeavour to check the destruction of albumen by the administration of large quantities of fat. Attention was also drawn by Leyden to Leube's method of subcutaneous application of fat.

### **18. Acute diabetes due to cancer of the pancreas.**

**Dreschfeld** (*Medical Chronicle*, April, 1895, p. 14) reports an interesting case of acute diabetes following on cancer of the pancreas. The symptoms on admission simulated those of cirrhosis of the liver, there being marked ascites, and the ill-defined mass, with resisting ridge, might easily be taken for an enlarged liver. The presence of sugar in the urine, which is not an unusual occurrence in cirrhosis, amounted to about 24 grains per ounce; there was no increased thirst, and the amount of urine passed was small. The amount of sugar and a high specific gravity (1.047) pointed rather to diabetes than to glycosuria. In most recorded cases of acute pancreatic diabetes, large quantities of urine are usually passed and the thirst is much increased. Though the urine contained both aceto-acetic acid and acetone, and persistent vomiting occurred during the short duration of the patient's life after coming under observation, there were no signs of diabetic coma. Death was due to syncope from a large amount of blood vomited. The large amount of hæmorrhage which had taken place into the omentum, as was found *post mortem*, which resembled at first sight a large hæmorrhagic cyst, is, as Dreschfeld remarked, of rare occurrence in cancer of the pancreas.

### **19. Gastric crises in saccharine diabetes.**

**K. Grube** (*Münchener med. Wochenschr.*, 1895, p. 186) considers the attacks of sudden epigastric pain, flatulence, and eructations, often accompanied with cramp and vomiting, etc., as of the nature of "gastric crises," allied to those that occur in tabes. He advises emptying the bowels with a saline aperient or an enema, and the application of hot compresses to the abdomen. In these cases he believes the glands of the stomach to be atrophied, and prescribes the use of alcoholic beef pancreas after meals. The attacks, though not dangerous in themselves, seem to indicate the final termination of the case.

[The gastric pains of diabetes mellitus have long been recognised, and have been regarded as due to peripheral neuritis, and are generally associated with similar pains, especially of the lower extremity.—C. H. R.]

### **20. Phenyl-hydrazin test for sugar in urine.**

**Williamson** (*Medical Chronicle*, August, 1895), after an



exhaustive examination of the claims of the phenyl-hydrazin reaction as a confirmatory test for sugar, comes to the conclusion that the test described by him as the *simplified method* is a most valuable one. It is very sensitive—more sensitive than Fehling's test and the fermentation test—and will give a reaction with diluted urine containing only 0.015 per cent. of sugar; but it is not too sensitive, and gives no reaction with normal urine. The great value of the phenyl-hydrazin test (simplified method) is as a negative test. A urine which gives no reaction by this method may be declared quite free from sugar for practical purposes. In doubtful cases, in which a slight reaction of copper oxide occurs in the urine with Fehling's test, if the simplified phenyl-hydrazin test gives no reaction, then the urine may be declared free from sugar, and the reduction of copper is due to some other body. Besides the various forms of sugar, so far as is known, only glycuronic acid and pentose also give the phenyl-hydrazin reaction in the urine; but many substances, which may occur in the urine, reduce Fehling's solution. Excess of uric acid, kreatinin, hippuric acid, pyrocatechin may cause a urine to reduce Fehling's solution, but only to a slight extent. These substances do not give any reaction with the phenyl-hydrazin test. Glycuronic acid and pentose reduce Fehling's solution, and also give rise to yellow needle-shaped crystals, with the phenyl-hydrazin test. Hence, in any doubtful case in which, for example, there is only a slight reduction of Fehling's solution, if the urine also gives rise to yellow needle-shaped crystals with the phenyl-hydrazin test, it contains sugar, glycuronic acid, or pentose. If the patient should be taking any drug, this must be discontinued, and the reactions would not then be obtained if the glycuronic acid due to medicines were the cause. If no drug is being taken, and the urine reacts to the simplified phenyl-hydrazin test, it is exceedingly probable that it contains sugar, since the occurrence of glycuronic acid and pentose in the urine in sufficient quantities to give reaction is extremely rare.

## **21. Diabetes insipidus treated by ingestion of suprarenal glands.**

Walter Clark (*Brit. Med. Journal*, 1895, vol. i., p. 1086) was led to try the effect of the adrenals by remembering the large nerve-supply accompanying their blood-vessels, which might or might not influence the nerves governing the blood-supply of the kidneys, both being derived from the semilunar ganglia. Whether the effect is thus produced, or whether it is the result of the tonic effect alleged to be induced by the ingestion of the adrenal substance on the blood-vessels of the system generally, he

cannot say, but in the case before him he finds that :—the urine has been reduced in amount from four gallons to three pints in the twenty-four hours ; the general health and strength have been much improved ; the patient, who before could hardly move about the house, could walk several miles, could do all the work of the house, and attend to her children. So long as she took the glands the urine was moderate in quantity, but when she ceased taking them the urine increased in amount, and great thirst and weakness resulted. What also struck him was the fact that, though the amount of urine passed was so much diminished, the quantity of urea excreted should remain so small ; though so much stronger, her weight had not increased. He also mentions that the glands from frozen mutton appeared to have much less effect than those from mutton recently killed.

## **22. Diabetes insipidus : disappearance under febrile reaction.**

Robert Lee (*Lancet*, 1895, vol. i., p. 1052) records the case of a girl, aged nineteen years, who for many years had suffered from diabetes insipidus. The disease was attributed to a fall from a hayrick when four years old. Up to the time of the febrile attack (June, 1894) the complaint ran its ordinary course. This attack followed immediately after the strain of an examination, and retention during some hours, without permission to leave the room. Great weakness followed immediately, the symptoms of diabetes ceased, and there was no thirst during the night. The great prostration and feverishness led to the suspicion that it was due to some form of remittent fever. The skin was congested, the pulse quick, and the temperature, when first taken, in the morning was 102° F. and in the evening 104·5° F. It continued like this for a week, and then for a fortnight it fell two degrees morning and evening ; then it rose three degrees, viz. 103° F. and 105° F. morning and evening for a week, and then fell lower. Thus, from June 22 to August 22, the state of fever continued without any manifestations of intestinal disorder or any other serious trouble, except epistaxis so violent as to cause alarm. During the next month a gradual fall of temperature took place, till the normal was reached, whilst the thirst gradually returned. So far as treatment deserves notice, it may be said that not until symptoms of returning diabetes displayed themselves, did there seem to be any improvement in the general condition. Lee thinks it strange that in a person whose condition of kidneys was one favouring excessive excretion of urine, any interference with this action is liable to produce serious constitutional disturbance.

[The fact that in diabetes mellitus the excretion of sugar, with a considerable reduction in the amount of urine passed, nearly always follows a rise in temperature, to reappear when the temperature becomes normal again, is now clinically recognised. A young woman who was passing about four pints of urine with sixteen grains of sugar to the ounce was seized with measles. During the pyrexial stage the sugar entirely disappeared, and the amount of urine fell to two pints, to reappear, and the amount of urine gradually increased as convalescence progressed, till the same standard was reached as before the acute attack. A few similar observations have also been made with regard to diabetes insipidus, though the number of cases recorded are few. Lee suggests that the febrile attack was caused by the prolonged retention of urine and the strain of an examination, but it is more probable that the constitutional disturbance was the first factor, and the diminished diuresis the result, as observed in other cases. Nothing determinate seems to have been ascertained as to the nature of the pyrexia.—C. H. R.]

### **23. Diabetes insipidus.**

Saundby (*Practitioner*, 1895, vol. liv., p. 39) points out that when the kidneys are normal the urea excretion is often above the average, and may be much increased, but in cases where the kidneys are cystic it sinks to less than half the amount. This cystic degeneration is, he thinks, a consequence of the gradual over-distension of the urinary passages by the enormous quantity of urine secreted. [This condition is generally indicated by the presence of a small quantity of albumen. A cystic condition of the kidneys is often found in young children who have suffered from polyuria.—C. H. R.]

## **III.—MISCELLANEOUS.**

### **24. Treatment of uric acid gravel.**

Henley (*Brit. Med. Journ.*, March 23, 1895) observes that the precipitation of uric acid gravel depends on two factors: want of solubility, and actual increase in the amount of uric acid excreted, though in most cases the former factor predominates. With regard to those cases in which precipitation depends on want of solubility, we naturally give those drugs which have known power to keep uric acid in solution. Piperazin he has found of use, especially in those instances where the deposit of gravel is associated with diminished solubility, and is not due to excessive formation. He gives it in combination with alkalies, such as alkaline waters, bicarbonate of potash, combined with iodides. the urine is always more acid at night and early morning, the

alkalies should be given at bedtime. The diet in this form is not important, except that a sufficiency of saline and vegetables are indicated. But in cases where uric acid is deposited as the result of excessive formation, a carbohydrate diet is most useful. He controverts the idea that sugar causes an increase of uric acid, since he has found that, after having taken one pound of sugar in a day, no noticeable increase of uric acid was observed in the urine. Alcohol should be avoided, because it causes an increase in the amount of uric acid secreted. Quinine and arsenic decrease the elimination of uric acid by diminishing the quantity of leucocytes. Moderate exercise is beneficial, whilst severe is the contrary. In cases of excessive formation, although alkalies are useful, they are only of secondary importance, by increasing the solubility of the uric acid excreted. [The question whether the ingestion of sugar is injurious for gouty patients and those suffering from uric acid gravel, should be the subject of a thorough discussion, as opinions are widely divergent on this point. For though it may be true that sugar, being non-nitrogenous, does not aid in the manufacture of uric acid, still it yields acid products which, carried into the circulation, diminish the alkalinity of the blood, thereby diminishing its solubility as regards uric acid, and thus allowing of its deposition in the tissues and in the urine. Patients who are the victims of arthritic gout, or kidney gout, usually complain that the ingestion of sugar is followed by increase of dyspepsia (acid), more pain in the joints, and increased acidity of urine.—C. H. R.]

### **25. Cystitis caused by sodium bicarbonate.**

**Matthieu** (*Société des Hôpitaux*, March 22, 1895) reports a case in which large doses of bicarbonate of sodium caused, not only cystitis, but distinct hæmaturia. It has been suggested that large doses of alkalies, when the urine itself is not strongly acid, by making the secretion strongly alkaline, encourage the multiplication of the vesical microbes and thus set up cystitis.

[It is more likely, in the absence of any pre-existing disease of the bladder, that the cystitis was caused by the deposition of calcium phosphate from the alkaline urine. It is a common experience that, when the urine becomes highly alkaline and milky from earthy phosphates, severe dysuria is the result, especially towards the end of micturition (terminal phosphates), and it can be easily understood that in persons of low vitality cystitis might be readily excited by such an irritating deposit.—C. H. R.]

### **26. Indicanuria.**

**C. E. Simon** (*American Journal of the Medical Sciences*, July and August, 1895), after a full consideration of the conditions that lead to the presence of indican in the urine, submits the

following propositions:—That the elimination of indican in the urine may be regarded as an index of the amount of free hydrochloric acid present; with a normal acidity of the gastric juice no excess of indican is present. The exception to this, however, is in cases of ulcer of the stomach. Simple constipation is rarely accompanied by excess of indican in the urine. Diarrhoea caused by an irritable condition of the colon, as well as disease of this colon generally, is not associated with increased elimination. In distinguishing between ileus and coprostasis, a small amount of indican excludes the former condition. By means of the indican reaction we are enabled to follow closely the results of treatment followed in gastro-intestinal diseases—provided (a) that no re-absorption of decomposing pus is taking place anywhere in this body; (b) that there does not exist a stenosis of the small intestine; (c) that a normal mixed diet is given containing no excessive amount of red meat.

### **27. Postural treatment of nocturnal incontinence of urine.**

T. Stumpf (*Lancet*, 1895, vol. i., p. 1680), states that incontinence of urine in children may frequently be cured by a very simple mechanical or, rather, postural expedient. The child's pelvis is raised in bed so as to be at an angle of from  $130^{\circ}$  to  $150^{\circ}$  with the vertebral column as it rests horizontally, the head being on a thin pillow. By this arrangement the weight of the bladder as it fills is prevented from pressing upon the vesical orifice of the urethra, and so does not cause involuntary micturition. After about three weeks of this treatment the child may generally be allowed to resume the ordinary position in bed without fear of a return of the incontinence.

# GOUT, RHEUMATISM, AND RHEUMATOID ARTHRITIS.

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## 1. The pathology of gout.

The views of Levison of Copenhagen on the Pathology of Gout have become widely known since the appearance of his monograph on the Uric-Acid Diathesis. His principal contention, that in gouty cases there is always some degree of antecedent renal disease, has been criticised by his countryman, **Prof. Lange** (*Hospitals-Tidende*, 1893, xxxvi., p. 629), who urges that:—(1) In only a small number of cases is a renal lesion to be recognised either clinically or *post mortem*, whilst the supposition that in the early stages the renal change is of a merely functional character is pure hypothesis. (2) That gout is far from being a frequent complication of granular kidney. (3) That the renal theory is difficult to reconcile with the well-recognised hereditary character of gout, which manifests itself, now in the form of articular gout, and at other times in the tendency to gravel and stone, or such other gouty manifestations as asthma or periodical depression. Further (4), that the theory in question affords no explanation of the periodic character of the gouty manifestations.

A recent paper by **Levison** (*Zeitschrift f. klin. Med.*, 1894, xxvi., p. 293) is chiefly directed to meeting the above objections urged by Lange. Levison, after discussing the present state of our knowledge of the origin of uric acid in the body, expresses his preference for the theory that the phenomena of gout are due rather to diminished excretion than to excessive production of this substance; for in those diseases in which excessive production undoubtedly takes place, such as leucocythæmia, there is no tendency to tophaceous deposits—a fact which he agrees with Sir W. Roberts in ascribing to the rapid excretion of the urate formed, which does not remain long enough in the

blood to allow of the formation from the soluble quadrurates of the highly insoluble sodium biurate. Recognising the importance to his theory of showing that in gout renal lesions are constantly present, Levison points out that the recorded *post-mortem* examinations of gouty patients have, with few exceptions, revealed such lesions, whilst the few exceptions to this rule are open to criticism.

He next quotes the records of a series of forty-two autopsies upon renal cases, in which the toe joints, and often other joints also, were examined. In twelve instances uratic deposits were found, and in each of these the renal lesion was of the granular type, whereas, among thirty cases in which the kidneys were otherwise diseased, no such deposits were met with. In fact, in all the cases of granular kidney in which *post-mortem* examinations were made at the Communal Hospital, Copenhagen, during a period of fourteen months, uratic deposits were found, although most of the patients were not known to have had any definite gouty attack. There is also, he contends, evidence that, in most instances, the renal changes anticipate the gouty lesions by long periods.

He shows that recent observations point to the epithelium of the convoluted tubules as the primary seat of disease in granular kidney, the interstitial change being secondary; and quotes the observations of T. Oliver on the kidney of lead poisoning. It has been shown that in granular atrophy the excretion of uric acid is diminished, and that there is a consequent accumulation in the blood.

To the criticism based upon the heredity of gout he replies that Dickinson and Eichorst have shown that there is also an hereditary tendency to granular kidney.

The association of lithiasis and gout may be due to granular changes started in the kidney by the presence of concretions, or the two tendencies may be inherited in the same family. Other symptoms regarded as gouty may, in reality, be symptoms of granular kidney, sufferers from which may remain for years in apparently perfect health.

It is true that analyses of the excreta yield an uncertain note, but some of the most complete of these, such as those of Vogel (see "Year-Book," 1895, p. 152), point to a diminished excretion of uric acid by gouty patients. The fluctuations of the excretion in health are very considerable, and greatly increase the difficulty of arriving at a definite conclusion on this point.

Lastly, Levison points out it is not necessary to suppose an absolute retention, such as would be revealed by urinary analyses,



in cases of gout, since kidneys capable of acting fairly satisfactorily under ordinary circumstances may not be able to cope with a temporary excessive production, whilst in some cases the renal damage is so great that retention takes place even with a diminished formation of uric acid. In the former of the supposed cases accumulation in the blood might result, and as a result an acute gouty paroxysm, even although the daily excretion of uric acid might not fall below the normal.

**Berkart** (*Brit. Med. Jour.*, 1895, i., p. 242) is amongst those who assign to uric acid an altogether subsidiary rôle in the pathology of gout, regarding as the essential factor a slow degenerative process of the tissues which are the seats of the manifestations of the disease, due to a profound disturbance of nutrition. These changes do not differ from those met with in other morbid conditions in which uric acid plays no part, and closely correspond with those of arthritis deformans. Berkart supposes that the sodium biurate is deposited in the primarily necrosed tissues of the joints from the inflammatory serum in which they are bathed.

He gives a detailed description of the microscopical changes observed in the tendons, cartilages, and kidneys of gouty patients. In the periphery of the uratic infiltration the fibres enclose a variable number of elliptical or polygonal cells, each with a distinct nucleus and granular protoplasm. Later the cells tend to become fused, forming polynuclear giant cells, and ultimately undergo fatty degeneration. Meanwhile the tissue becomes permeated with vessels, and he finds that the uratic deposits, far from avoiding the neighbourhood of the blood-vessels, as has been stated, are, on the contrary, sometimes found in their very walls.

## **2. The gouty heart.**

In a valuable paper (*Practitioner*, 1895, liv., p. 18) **Mitchell Bruce** discusses the cardiac disturbances associated with the gouty state. He accepts as evidence of a gouty origin of the trouble (1) a personal history of declared gout; (2) a personal history of free living, with migraine, irritable bladder, eczema, insomnia, depression, etc.; (3) the relief of the condition by treatment directed against the gouty state; and (4) family history of gout, migraine, gravel, or glycosuria. The heart is more usually affected in irregular than in typical gouty cases.

The patient is usually a man aged about forty, or rather older, and often leads a sedentary life with intermittent bursts of activity. The symptoms complained of are pain and oppression in the præcordia, occasionally of an anginal type; sometimes palpitation, a sense of weakness, coldness of the extremities, sweating

and flatulence. The pulse is apt to be irregular. The attacks may persist for months, coming on after any exertion, and a tendency to hypochondriasis is common. The trouble may cease with the development of an attack of acute articular gout.

On examination of the heart no valvular lesion is detected, but there are signs of dilatation and feeble action. In a word, the patient has a large weak heart.

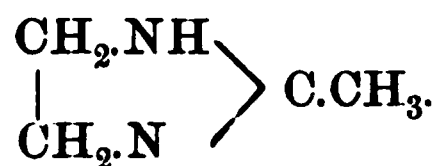
The pulse may be unduly slow or frequent, and the tension is as a rule below rather than above the normal.

The author regards the cardiac condition as one of weakness with irritability, due in part to the action of uric acid upon the neuro-muscular structures, which are often overtaxed by peripheral resistance. The onset of the symptoms frequently follows a sudden strain. The prognosis is favourable, but the symptoms may persist for years. As regards treatment he recommends reassurance of the patient, great limitation of exercise for a time; sojourn in a bracing climate; the use of mineral waters, such as those of Homburg; spare diet; limitation of alcohol; prohibition of smoking; and, as drugs, blue pill, Plummer's pill, saline purgatives, potassium iodide, arsenic, strychnine, or digitalis. Nitrites and nitroglycerine may be of use. Opium should only be given during acute attacks.

### 3. Treatment of gout.

Recent work bearing upon the treatment of gout has been chiefly concerned with certain substances which have been found to possess an exceptional power of dissolving uric acid *in vitro*—viz. piperazin and lysidin.

*Lysidin* is obtained as a hydrochlorate by the dry distillation of sodium acetate with ethylene-diamene hydrochlorate, and has the formula—



Its power of dissolving uric acid is said to be five times as great as that of piperazin. It is a hygroscopic reddish-white crystalline substance, the taste of which is said to recall the smell of mice. It is readily soluble in water.

E. Grawitz (*Deutsche med. Wochenschrift*, 1894, xx., p. 786) administered the drug in increasing doses from 1 to 5 grammes a day to two patients suffering from chronic tophaceous gout. No unpleasant action was observed upon the stomach or urinary organs. In both cases the effects were decidedly encouraging, and a temporary arrest of the treatment in the first case was

followed by a relapse, which again yielded to the drug. The metabolism of the patients was carefully studied, the food, urine and faeces being analysed. A total nitrogen retention was observed during the use of the drug, accompanied by a gain in weight; but there was no evidence of increased or diminished excretion of uric acid as a result of its administration.

The treatment was attended with a marked diminution in the size of the tophi upon the epiglottis, joints, and elsewhere, and the mobility of the joints was greatly increased.

Grawitz was in doubt whether an increased uric-acid excretion observed in the second case towards the end of the treatment was due to the drug, but he was satisfied that, at most, only a part of the uric acid absorbed from the tophi appeared in the urine as such.

In a case of acute rheumatism lysidin had no curative effect, whereas antipyrin produced a speedy cure.

G. Klemperer and A. von Zeisig (*Zeitschrift f. klin. Med.*, 1895, xxvii., p. 558), on the other hand, treated three cases of typical gout with lysidin, and observed no noticeable influence of the drug either upon the clinical course of the disease or upon the excretion of uric acid.

#### *Piperazin.*

Mapother (*Practitioner*, 1894, liii., p. 265) speaks highly of the value of piperazin in the treatment of gouty cases, as also does Heerman (*Therap. Monatshefte*, 1894, viii., p. 561), who found that the attacks were cut short and the return of the disease postponed. He recommends the administration of the drug in doses of 0.5 gramme in the twenty-four hours at first, the quantity being afterwards doubled if necessary. In the same journal (1895, ix., p. 359) Heerman emphasises his recommendation after further experience of the effect of the drug in cases of genuine gout.

Biesenthal (*Virchow's Archiv*, 1894, cxxxvii., p. 51) maintains his high opinion, previously expressed, of the value of piperazin in the treatment of the uric-acid diathesis. He believes that the effects of the drug are due to its great power of dissolving uric acid, and to the fact that even in the presence of an excess of uric acid the neutral urate of piperazin is formed, which is excreted intact by the kidneys, and appears to have a decidedly greater power of diffusion through membranes than sodium biurate has. Biesenthal holds that it is very probable that after the administration of piperazin the uric acid in the blood and tissues takes the form of the soluble urate of piperazin, and so is more readily eliminated. He believes that the base circulates in

the blood as carbonate of piperazin, formed by the action of sodium carbonate on the chloride of piperazin in the stomach, and that in the blood urate of piperazin is formed. He bases this view upon the observation that *in vitro* a mixed solution of sodium carbonate and piperazin urate does not, even when concentrated, undergo double decomposition into sodium urate and piperazin carbonate. Biesenthal further believes that piperazin causes a decrease in the uric-acid formation, and supports this view by an elaborate series of urinary analyses.

The author then proceeds to discuss the action of piperazin in cases of uric-acid calculus and gravel, but this portion of the subject does not come within the scope of the present article.

*Lycetol.*

Wittzsch (*Allg. med. centr. Zeitung*, 1894, No. 7; abstract in *Therap. Monatshefte*, 1895, p. 387) has employed lycetol (dimethyl-piperazin-tartarate) in cases of gravel and articular gout. He regards it as of equal value with piperazin, and it has the advantage of being cheaper. It is not hygroscopic, and has a pleasant taste.

In a case of articular gout the quantity of urine was increased and its specific gravity lowered, but no diminution of acidity was observed. Attacks of gout, which usually recurred at definite periods, were warded off. No constitutional disturbance was produced even when the drug was administered for long periods.

*Uricedin* is a mixture of salts which has been brought out as a remedy in cases of gout and gravel, the constituents of which are sodium citrate, chloride and sulphate, together with lithium citrate. Its claims to recognition as a powerful solvent of uric acid have been investigated by Meisels upon the lines followed in his earlier work on piperazin.

Meisels found that piperazin has the power of preventing the deposition of urate in the tissues of birds after the subcutaneous injection of potassium chromate, a phenomenon to which attention was first called by Ebstein. When, on the other hand, uricedin was given instead of piperazin, no influence whatever in preventing or in removing the uratic deposits was observed. In human beings the excretion of uric acid in the urine, far from being increased, as has been claimed, by the administration of uricedin, was rather diminished.

As the result of his experiments and observations upon the action of this mixture of drugs upon birds and human beings, he comes to the conclusion that uricedin is not entitled to a place among the uric-acid solvents.

**Martin Mendelsohn** (*Deutsche med. Wochenschrift*, 1895, xxi., p. 283) states that the great solvent power for uric acid which is undoubtedly possessed by both piperazin and lysidin is abolished by the presence of urine even in small amounts, and he has been able to trace this inhibitive action of urine to the sodium chloride which it holds in solution. Hence he concludes that these drugs must be powerless to dissolve renal or vesical concretions of uric acid. With the tophaceous deposits of gout the case is different, seeing that in serum uric acid is dissolved in the presence of piperazin or lysidin nearly as readily as in an aqueous solution.

[We have, then, on the one hand, clinical observations, such as those of Grawitz above quoted, pointing to the reduction in bulk of tophi, and on the other hand, the difficulty of explaining on chemical grounds the formation of the soluble urate of piperazin or lysidin from the highly insoluble sodium biurate of which such tophi mainly consist.]

**Labutat** (*Gazette des Hôpitaux*, 1894, lxvii., p. 1318) discusses the treatment of gout by the electrolytic introduction of lithium. It is found that lithium, which is not a normal constituent of the human body, and the presence of which can be readily demonstrated by means of the spectroscope, can be so introduced; and although the quantities so introduced are smaller than those taken by the mouth, being confined to the parts treated instead of being diffused throughout the body, they may be expected to produce a greater effect. A paper by Edison on the treatment of tophi by such means was referred to in the "Year-Book" for 1891, p. 158.

The whole subject of the treatment of gout by drugs, diet, and such external treatment as exercise, clothing, climate, hot baths, massage, etc., is discussed in a paper by **Mordhurst** (*Therap. Monatshefte*, 1894, viii., p. 450).

#### 4. Rheumatism.

*The relation of tonsillitis to acute rheumatism.*

**Buss**, of Bremen, discusses the relationship of these two conditions in a long and elaborate paper (*Deutsches Archiv für klinische Medizin*, 1894, vol. liv., p. 1). He adduces examples of the repeated occurrence of tonsillitis and rheumatism in members of the same family, and of the occurrence of acute rheumatism as an immediate sequel of tonsillitis. He then gives an elaborate summary of the literature bearing upon this subject, showing that a large number of observers have recognised the close relationship of the two conditions. Then follows an equally elaborate summary of the bacteriological researches into their causation, which leads him to the conclusion that such knowledge as we

possess of the subject renders it in the highest degree probable that acute rheumatism is, in many if not in the majority of cases, due to pyogenic organisms which have lost some of their virulence, although there is evidence that the bacillus pneumoniae and the diplococcus of Fraenkel have also the power of producing this same disease. He compares acute rheumatism to ulcerative endocarditis and pneumonia, which were originally supposed to be due to a specific micro-organism, but in which it has been shown that various different micro-organisms are capable of producing the same group of symptoms. For anyone who is in search of references to the association of tonsillitis with rheumatism, or to the bacteriology of acute rheumatism, this paper provides a most valuable supply of material.

### 5. Anti-rheumatic drugs.

*Tolypyrin and Tolysal* (see "Year-Book," 1895, p. 160) have been further tried by Otto Dornblüth, who speaks highly of their effects in cases of acute rheumatism.

*Lactophenin*, a drug allied to phenacetin, from which it differs in the substitution of a lactic for an acetic radicle, is a crystalline white powder, with a slightly bitter but not unpleasant taste, and soluble in 330 parts of water. It has been employed by von Roth in the treatment of acute rheumatism with satisfactory results, and has also proved useful in a few cases of chorea. Von Roth regards lactophenin as entitled to be ranked on a footing of equality with sodium salicylate as an anti-rheumatic drug. The dose given was 5 grammes *per diem*; no unpleasant effects were observed.

*Malakin* (see "Year-Book," 1895, p. 160) has been submitted to further trial in cases of acute rheumatism by B Baumüller (*Münchener med. Wochenschr.*, 1894, vol. xl., p. 324), who describes it as a mild drug, having no unpleasant effects except that it causes profuse sweating in the majority of cases. In some instances it seemed to have an effect upon the quality of the pulse. Its anti-rheumatic action is comparable with that of sodium salicylate. The drug was given in doses of 5 or 6 grammes in the twenty-four hours.

*Salipyrin* (see "Year-Book," 1892, p. 193).

Heming (*Atti dell' xi. Congresso Internaz. Roma*, 1894, vol. iii., p. 74) speaks very highly of this drug in the treatment of acute rheumatism, and adds that he believes that by the well-timed and energetic use of salipyrin the development of heart affection is, as a rule, hindered. He has found that since this drug has been employed in his wards in place of sodium salicylate the frequency of cardiac implication has been greatly diminished.

*Salophen.*

**Hochschneider** (*Il Morgagni*, 1894, xxxvi., p. 240) records in detail a case of acute rheumatism in a man aged thirty-five, in which the administration of salophen was attended by most satisfactory results. He regards it as especially useful when there is gastric disturbance either antecedent to or following the use of sodium salicylate.

**6. Rheumatoid arthritis.**

**Fortescue Fox** (*Lancet*, 1895, ii., p. 81) discusses the clinical varieties of rheumatoid arthritis. He makes his first group include cases occurring in young subjects. In these cases the disease assumes its most severe and most typical form. Many joints are affected, and there are from the first profound debility, rapid heart, profuse perspiration, and progressive wasting. The preponderance of female cases is very striking.

Fox's second group includes those cases in which the disease develops in women who are passing through the climacteric epoch. As a rule the malady assumes a less severe type in these than in the preceding cases. "Intermissions of one or two years are not very uncommon after the first onset, and, after a few years, comparative quiescence, with localisation in one or two or a few joints, is much more frequent than in arthritis of the young." The constitutional disturbance is less, and the prognosis therefore more favourable. Neuralgic pains and other abarticular symptoms may anticipate, even by a few years, the development of the joint lesions.

In a considerable number of cases uterine disorders, slight or severe, were present. Married women, and especially such as have borne children, are more often attacked than those who are unmarried.

The third class of cases includes those occurring in old people—generalised senile rheumatoid arthritis. To this form men appear to be more liable than women. In a considerable proportion of such cases mental affections coincide with the joint lesions.

The localised varieties are regarded by Fox as entirely distinct from the generalised form of rheumatoid arthritis, and he looks upon Heberden's nodes as middle-age or senile changes almost always the result of hereditary gout. He has found that in true rheumatoid arthritis such changes as occur in the terminal joints usually result, not in enlargement, but in atrophy.

Fox considers that in the production of rheumatoid arthritis some disturbance of the nervous system plays an important part.



# INFECTIOUS FEVERS.

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## **1. Treatment of diphtheria by antitoxin.**

In the "Year-Book" for 1895 an account was published of the investigations which led to the treatment of diphtheria by the serum of animals which had been immunised against the disease ; and a summary was given of the observations of those who had tried the treatment in England and abroad up to the date of publication of the "Year-Book." During the past twelve months the treatment has been tried in almost every part of the civilised world, and it would be impossible within the limits of this article to give even the names of those who have written upon the subject ; but a short summary will be supplied in which the general result of these contributions may be set forth.

In London the great majority of diphtheritic patients are at present treated in the hospitals under the direction of the Metropolitan Asylums Board, and at an early period in the history of the treatment by antitoxin, arrangements were made with the authorities of the Royal Colleges of Physicians and Surgeons by which a bacteriological examination should be made, in their laboratories, of membrane from all cases sent into the above hospitals as diphtheria. In this way, those patients who presented the Klebs-Loeffler bacillus were identified as suffering from true diphtheria and submitted to the antitoxin treatment. The antitoxic serum was supplied to the hospitals by the British Institute of Preventive Medicine, and later by the laboratories of the Royal Colleges, from horses which were immunised for the purpose and kept at a farm in the neighbourhood of London.

It was wisely determined that the treatment should be carried on for a period of twelve months before any attempt should be made to place before the profession statistics as to the results of the treatment, and as this period has not yet elapsed,

it is not possible to lay before the readers of the "Year-Book" any comparison of the results of the treatment in these hospitals with the results of other methods of treatment

In consequence, the statistics available, dealing with the largest groups of patients submitted to the treatment, come from abroad, and especially from Germany, where the Imperial Board of Health set on foot an inquiry limited to the observation of the results of the treatment in the large hospitals, and the answers to which were afforded in quarterly reports; so far, reports from this source have been received based on treatment of 1,228 cases. In England it would be unfair not to acknowledge the indebtedness of all members of the profession interested in the subject to the *British Medical Journal* for the manner in which, week by week, it has laid before its readers information from every available source on this important matter.

## **2. Characters and cultivation of the bacillus of diphtheria.**

In the last "Year-Book" a brief account was given of the bacillus described by Klebs and Loeffler, and of its mode of cultivation. Since then, all additional investigation has tended to show the correctness of the statement that this bacillus is the cause of diphtheria, and that the poison of diphtheria found in the membrane or mucous surfaces has its origin in the bacillary growth, and is thence absorbed into the blood. Dr. Sidney Martin has shown that this poison is probably in the nature of a ferment, and that its entry into the blood is followed by production of certain other poisons or albumoses not found in the blood, by degeneration of nerve tissue, and acute fatty degeneration of the cardiac and other muscular fibres; and he has also shown by experiments on animals that these pathological changes do not occur when antitoxin is introduced into the blood at the same time as the toxin.

The following description of the bacillus and the modes of cultivating it, by Klein, is a more full account than it was possible to give in the last volume of the "Year-Book."

"The superficial layers of the false membrane contain large numbers, occasionally in almost pure culture, of one and the same species of bacilli, aggregated in larger and smaller masses, separate, but more often grouped together. These are the Klebs-Loeffler bacilli. From the superficial parts of the membrane the groups extend, as vertical sections show, also into the deeper parts of the membrane and even as small groups into the inflamed, but as yet not necrosed, part of the mucous membrane. Cultivations made from such false membrane,

particularly from washings of it, yield an almost pure crop of the characteristic colonies of the diphtheria bacilli. A film or a cover-glass specimen made from a piece of the membrane shows a large majority of cylindrical or rod-shaped non-motile bacilli of about the size of 1·5 to 3·5 micro-millimetres, many distinctly conical and pointed at one end; they occur as single rods or in pairs, attached end to end—in this latter case often touching with the thicker parts; occasionally a bacillus is seen which at one end is enlarged and club-shaped; sometimes a longer rod is met with which is composed (linearly) of unequal joints, some short, like granules, others longer and rod-shaped. Besides isolated bacilli, there are often found irregularly-grouped masses.

“On solidified blood serum (pure, or better, Loeffler’s serum), on solidified beef bouillon agar, on glycerine agar incubated at 37° C., there are seen already after twenty-four hours whitish-grey dots; after forty-eight hours these colonies have increased in size, and after three or four days, the colony being much larger shows in reflected light the central part prominent and yellowish, the peripheral part thin and comparatively film-like. The young colonies are composed of the same cylindrical bacilli described above, many pointed at one end, some distinctly swollen and elubbed at the other; after forty-eight hours’ growth there will be recognised longer forms with segregated protoplasm, being seemingly composed of a chain of rod-shaped bacilli, with here and there a granule between them; these longer forms possess an enlargement at one or both ends. Cultivations on gelatine incubated at 20·5° to 21·5° or 22° C. show the same characteristic colonies, only the growth is much slower, but becomes less slow in further subcultures.

“Such are the bacilli found in the false membrane of typical cases of diphtheria; as a rule, these bacilli occur abundantly in the membrane, in some cases in almost pure culture. As regards the size (or length) of the bacilli, both in preparations of the membrane as in those of the resulting colonies in culture, there appear certain differences; for in some cases the bacilli are very short, while in others there are a good many long forms isolated or arranged more particularly in chains, with segregated protoplasm, and with larger or smaller club-like enlargements.

“A second group comprises cases which in clinical and epidemiological respects are undoubted diphtheria, which can be traced to an antecedent case of diphtheria, and in which the membrane or muco-purulent secretions contain a very variable number of the diphtheria bacilli; but they contain at the same time a very large number of other microbes, which on cultivation

prove to be chiefly cocci, *staphylococcus aureus* and *s. albus*, small streptococci and chains of larger cocci.

“In these cases the number of diphtheria bacilli may be sufficiently large to be identified by their shape and grouping and to be easily recovered by culture, or they may be so limited as to be only identified by culture; but even then the chances of identification are not great if the bacilli are practically swamped by cocci, notably streptococci. In these cases only after careful and extensive searching can the colonies of diphtheria bacilli be discovered, and I am under the impression that it is such cases which have given rise to the opinion occasionally expressed that in some diphtheria cases no diphtheria bacilli have been found.

“The third group of cases are those in which no obvious antecedent connection can be established, and in which the clinical history does not enable one to make a diagnosis. It is obvious that it is precisely in these cases that correct diagnosis is of the utmost importance. Now, if from the secretion of the fauces (in cases of faucial inflammation, follicular tonsillitis) or from the nose (in cases of rhinitis) diphtheria bacilli can be isolated, then the case must be pronounced to be one of diphtheria.”

In cases in which, owing to the presence of a great number of other bacteria, the ordinary methods of culture are likely to fail, Dr. Klein recommends the following method of culture:—“If on the examination of stained cover-glass specimens of the membrane or other secretion no definite evidence can be obtained of bacilli morphologically resembling the diphtheria bacilli, and if there are present large numbers of cocci and other microbes, agar plates are made in this manner: sterile bouillon agar, in a tube, is melted over the flame, and then poured out into an ordinary sterile plate dish; after the agar has set, a piece of the membrane or secretion is rubbed, by aid of a platinum loop, gently over the solidified agar surface in the whole extent of the plate dish, and the plate is incubated at 37° C., lid downwards. Next day the surface is found covered and bestrewn, as it were, with minute colonies; in many parts they are so numerous as to lie very close together. Now all these colonies are on the surface, none in the depth, because the sowing has been performed on the surface of the agar already set. In an ordinary agar plate—that is, when the melted agar is inoculated, shaken, and poured out into a plate and allowed to set—a good many colonies, of course, come up in the depth and only a fraction on the surface; and it is these latter only which can be subjected to further microscopic and cultural examination. Those in the depth are practically lost for such

examination. Cultivations on the surface of agar or serum contained in tubes offer likewise great difficulties if very numerous colonies are present, because if amongst a crowd of colonies only a limited number of diphtheria colonies are present, these obviously are easily overlooked.

"Now these difficulties are overcome by the above surface agar plates, for in these almost every colony can be subjected to microscopic examination. Provided the sowing has been done by lightly rubbing the material over the surface of the agar in the plate, all colonies are easily taken off by pressing against the surface of the agar a cover-glass—that is, making impression preparations on a series of cover-glasses from the agar surface; if necessary, from the whole surface. The cover-glass impressions are dried and stained. Each is found covered with great numbers of dots, each dot being a colony. Subjecting the dots on the cover-glasses to an examination with a power of 150 to 300, those that are made up of cocci can be easily distinguished from those made up of bacilli, and each one made up of bacilli can with high powers be readily identified as a colony of diphtheria bacilli by the shape and arrangement. Such plates after having been used for impression specimens as above are of no further use; but I think anyone with a little experience could recognise, when examining the agar surface with a magnifying power of 100 to 150, whether a colony is composed of diphtheria bacilli, and if so, could under a simple microscope make subcultures from such a colony. The cases in which this method is necessary are not common; in most instances, though cocci are numerous, there are generally a sufficient number of diphtheria bacilli present to yield fairly easily recognisable colonies on the surface of agar or serum in tube cultivations. I have had, however, recently two cases of what clinically and epidemiologically were clearly cases of diphtheria, but in which the tube cultivations failed. The above surface agar plates yielded positive results. In the cover-glass impressions, amongst about each sixty colonies of cocci one distinct diphtheria colony was identified."

A certain definite relation has been said to exist between the size of the bacilli and the severity of the case from which they were derived. But there seems no constant relation; in some very mild cases, which rapidly recovered, abundance of bacilli of the short variety have been found, and other cases equally mild yielded those of the long variety; in some very severe cases the long, in others equally severe the short, bacilli have predominated. Parker and Beebe, of New York, found the greatest

mortality where the rods were shorter than the average. **Shuttleworth**, of Toronto, formed the general conclusion that the worst cases are those in which Loeffler's bacillus is associated with staphylococci and streptococci. But at present our knowledge does not allow of any accurate prognosis of the course of any case from mere examination of the bacilli or their cultures.

### **3. Effects on the diphtheritic membrane.**

That the injection of antitoxin promoted the separation and limited the spread of the false membrane, was one of the very earliest observed results of the treatment. And this is confirmed by the more prolonged experience now obtained. In some cases the loosening of the membrane and the rapidity of its separation are quite remarkable, and are observable a very few hours after the commencement of the treatment. There is scarcely any difference of opinion expressed on this point, but in some cases it must be admitted that the membrane continues to spread after the antitoxin treatment has been commenced.

Inasmuch as it is from the membrane of diphtheria that the poisonous substances producing the constitutional effects and nerve degenerations of diphtheria are absorbed, there is every ground for believing that (quite apart from the mechanically-produced danger which membrane in the larynx produces) a diminution in the amount and duration of the membrane lessens the absorption of toxic products. At the same time it should not be forgotten that the bacilli may often be found in the mucous membranes when all trace of membrane has disappeared for many days or even weeks, and it is still a matter of doubt whether during this period fresh doses of toxin are not being produced on the surface and absorbed into the blood.

### **4. Effects on laryngeal obstruction.**

There is a very general agreement that by limiting the spread of the membrane into the larynx from surrounding parts, and by facilitating separation of the membrane when its primary seat of deposition is in the larynx itself, the antitoxin treatment is of the greatest use. **Professor von Ranke**, of Munich, stated at the meeting of the British Medical Association, in August, 1895, that in his clinic the effect of the treatment was so marked in averting laryngeal obstruction that operation had never been required at a later period than twenty-four hours after the injection. **Baginsky** found that no case under his care in which antitoxin had been injected suffered from laryngeal obstruction, and, of the 1,228 cases reported on by the German Imperial Board of Health, forty-five occurred in which it was considered that operation for laryngeal obstruction was averted by the antitoxin.

Where there is threatening of laryngeal obstruction this often passes off a few hours after administration of antitoxin, and this period may usually be tided over by intubation, thus dispensing with tracheotomy; **Caiger**, at the South-Western Fever Hospital, London, found the cases in which tracheotomy was required were reduced from 73 to 40 per cent., calculated on 117 cases.

The usefulness of antitoxin in promoting the separation of membrane from the neighbourhood of the larynx can hardly be denied; in this position the danger is not only from absorption of toxic products, but the imminent danger of immediate asphyxia, and, in the author's experience, this danger is frequently averted by the antitoxin.

### **5. Effect on the temperature.**

According to **Roux** and earlier observers, the administration of antitoxin was followed by a reduction in the temperature, and **Heubner** and others agree with this statement.

**Wiederhofer** and **Kassowitz** report to a contrary effect, and according to **Lennox Browne**, the temperature is elevated rather than depressed by the antitoxin.

The temperature in diphtheria may not be very high even in severe cases, and often irregularly rises and falls; in many cases too it is low, or even subnormal in grave cases. On account of this irregularity, in many cases due to pulmonary or other complications, it is not possible in many cases to decide what effect the antitoxin produces, but the writer of this article has found that in simple cases the temperature usually is lowered after antitoxin—at any rate, temporarily.

### **6. Effect on the pulse and circulation.**

The majority of observers have reported that there is usually a fall in the pulse-rate soon after the administration of antitoxin. This is, however, denied by others, and in the Report of the Imperial Board of Health it is stated that, though in general a fall in pulse occurs with that in temperature, a quick pulse-rate persisted in some cases long after the fall in temperature. In the author's experience there has been in most cases a fall in the pulse-rate after the antitoxin, though this has not always been permanent. Of more importance is the question as to the frequency of heart-failure. **Baginsky** asserts that the danger of heart-failure is reduced by the treatment, while **Heubner** and many others admit that heart-failure is the most common form of death under the antitoxin treatment, and **Kassowitz**, in the discussion at Vienna on the antitoxin treatment, stated that it made heart-failure more frequent than before.

But in the enormous numbers of statistics of cases, no



distinction appears to have been made between those cases of early heart-failure and those which occur during apparent convalescence from the disease. Heart-failure in diphtheria may arise from the fatty degeneration of the cardiac muscle, or from paralysis from nerve degeneration, both of which are producible by the toxin of the Klebs-Loeffler bacillus. And as we are without any reliable statistics as to the proportion of cases in which cardiac failure was the cause of death previous to the introduction of antitoxin, no numbers of the percentage frequency of cardiac failure under antitoxin treatment are of any use in determining whether it increases the frequency of heart-failure or the reverse.

So far as the author's experience goes, there has never been anything to indicate that the antitoxin treatment increased the tendency to cardiac failure during the acute stage of diphtheria. On the contrary, it would appear greatly to improve the patient's general condition, to moderate the pyrexia and the pulse-rate; it also obviates the necessity of so continually rousing the child for irrigations and sprays, and enables it to take food more readily, and to get sleep. No doubt cases of heart-failure in the early stage of diphtheria occur notwithstanding antitoxin, especially where from any cause it has not been administered at the onset of the disease, but there does not appear to be any ground for attributing such heart-failure to antitoxin.

But it has been known, though not perhaps sufficiently recognised, that many days, or even weeks, after the primary diphtheria (in one case of the author's nine weeks), heart-failure may occur sometimes quite suddenly, sometimes only after disturbed action of the heart, great rapidity or extreme slowness, or intermittence or irregularity; such late cardiac failure is probably due to nerve paralysis. And it would appear that the antitoxin treatment may, by enabling patients to struggle through the early dangers of diphtheria who would otherwise succumb to them, increase the number of convalescents who may subsequently die from failure of the heart.

It remains, however, to be ascertained whether this unfortunate result will occur so often as to neutralise the beneficial effects of antitoxin.

### **7. Albuminuria and renal complications.**

According to some, albuminuria is less frequent after the antitoxin treatment. Thus, Ganghofner (*Prager med. Woch.*, Nos. 1 to 3, 1895) found that in not one of thirty-three cases treated by the serum on the first two days of illness did

albuminuria occur; and of the 1,228 cases reported by the German Imperial Board, albuminuria was observed in only 16·6 per cent. **Monti** (Discussion at R. Med. Ch. Soc., Vienna) alleges that casts are never found in the urine after antitoxin treatment, and **Baginsky** agrees that albuminuria is rendered less frequent by the treatment. **Kolisko**, at Vienna, from an experience of 1,000 autopsies on diphtheria cases, of which seventy-five had been treated by antitoxin, found that the kidneys differed in no way from those in cases where antitoxin had not been employed.

(Others who have tried the treatment state that it produces albuminuria, but it is not possible to say with certainty whether this is so or not. If Dr. Saunderson's dictum that in nearly every case of diphtheria there is albuminuria at some time is correct, it is not possible for antitoxin to increase its frequency of occurrence. The author has not observed any increase in quantity of albumen in these cases, or in the number of cases in which it occurs, but it certainly may disappear temporarily after antitoxin and return some days later. It has been said that death from anuria is rendered more frequent by antitoxin, but such cases were not very infrequent before, and a very large number of cases in which it occurred would be required to prove any increased tendency to anuria from any remedy.

### **8. Incidence of paralysis.**

It was at first claimed that the antitoxin treatment would diminish the frequency of paralysis after diphtheria, but, as pointed out in the last "Year-Book," it was necessary to keep observation on the patients much longer than had been done, before claiming that the antitoxin lessens the liability to paralysis. And while there is some evidence that paralysis becomes more frequent after antitoxin, there is little to the contrary. **Kassowitz**, who is not in any way favourably inclined to the treatment, says it increases the frequency of paralysis. **Goodall's** series of 241 cases at the Eastern Hospital, London, showed 2·4 per cent. more paralysis than in patients treated by other methods.

It is with truth pointed out that here, as in the case of heart-failure (no doubt itself also in many cases paralytic), this may be due to the increased number of patients whom the antitoxin enables to reach the later periods in which paralysis occurs, and in all probability this is the case. At the same time, paralysis may be a source of grave danger, and if an increased number of deaths occur from late paralysis, little will have been gained by tiding them over the acute early stage of diphtheria.

### **9. General condition of the patient.**

An improved general condition of the patient was one of the

earliest claims on behalf of antitoxin by those who introduced the treatment, and the reports to the Imperial Board of Health point to the same conclusion, as do those of most others. **Sims Woodhead** says the disease assumes a milder course; **Heubner**, that instead of lasting eight days, as a rule, the course of the disease is shortened to five or six days. Others, however, do not admit that there is any general improvement; thus **A. Johnston**, of Belvidere Hospital, Glasgow, says sudden improvement has been conspicuous by its absence, and that nothing at all different in the general state has been observed from the antitoxin treatment; and **Hansemann** and **L. Browne** also report in the same sense.

#### **10. Effects of antitoxin on the mortality from diphtheria.**

Enormous masses of figures have been published to show the results of the treatment by antitoxin, but in estimating the value of the treatment as tested by these numbers, several points must be remembered.

*First*, the mortality percentage from diphtheria appears for many years to have been very much higher on the Continent than in hospital or private practice in England, and there was therefore very much more room for diminished mortality from any treatment adopted abroad than there was in England. This may have been due to the more virulent form of disease prevailing on the Continent than in England, but it is, no doubt, in part due to the greater attention to hygienic surroundings in and out of hospitals which is given in England as compared with others.

*Secondly*, in any comparison made between statistics of deaths from diphtheria, none are of any value unless the age of the patient is exactly stated, seeing how greatly the mortality from diphtheria, under any circumstances, is dependent on this point.

*Thirdly*, the character of epidemics of diphtheria varies so widely—in some cases being of the greatest malignancy, in others hardly recognisable as diphtheria, except by the aid of the microscope—that the effects of treatment are impossible to judge of by mere absolute statements of the percentage mortality.

*Fourthly*, since the discovery that it is only in a certain proportion of cases of supposed diphtheria that the Klebs-Loeffler bacillus is to be found, cases in which that organism is not present have ceased to be regarded as true diphtheria, and the cases which have been submitted to the antitoxin treatment have been those with the Klebs-Loeffler bacillus, and it is not possible to make any accurate comparison between the results in these cases and the results of treatment in previous years, when the class of

diphtheria included many cases which were in all probability simple tonsillitis.

*Fifthly*, again it is the very essence of the antitoxin treatment that it shall be commenced at a very early period of the disease, and this is entirely impracticable in most cases of a disease which may begin so insidiously as diphtheria, and which is admittedly clinically indistinguishable in many cases from a simple sore throat.

All these considerations tend greatly to limit the value of the deductions to be drawn from any mere series of numbers of cases recovered, and cases which did not recover, under a given method of treatment. And the actual value of the treatment must be determined not only by statistics, but by personal observation of the antitoxin treatment by those who were familiar with the course of diphtheria before antitoxin was introduced, and with the results of previous methods of treatment.

According to **Ranke**, the mortality is reduced one-half by antitoxin as compared with previous best years, and two thirds as compared with unfavourable years. **Baginsky** calculated that the mortality among his patients was reduced from 41 to 15·6 per cent., and **H. Biggs**, of New York, that the reduction was from 40 to 16 per cent. in that city. **Moizard**, among 231 cases, had a mortality of only 14 per cent., and **Heubner**, at the Munich Congress, announced a mortality of 20·6 per cent. among 3,036 cases.

**Welch** ("Bulletin of Johns Hopkins Hospital," 1895, p. 97) deals with 7,166 cases, collected from various sources, showing a mortality of only 17·3 per cent.

**Gayton** argues, however, that the reduction in the death rate is not uniform, as it ought to be if a single favourable factor was at work, and that the reduction in the death-rate may be explained equally by the generally less virulent form of the disease. But it can hardly be seriously held that this reduction in the mortality reported from all parts of Europe at the same time since antitoxin has been in use can be due to a sudden universal change in the virulence of the disease.

#### **11. Unfavourable results of antitoxin treatment.**

1. *Cutaneous eruptions*—These occur very frequently, sometimes in a few hours, sometimes some days after the injection; in most cases the rash resembles urticaria, in some cases it closely resembles the eruption of scarlatina, and more often it simulates measles. It may occur universally, or only on body or on limbs; in some cases the eruption produces large, irregular, raised pink patches with clear skin between them, and when these patches are crescentic they greatly resemble those of measles—

there may be desquamation after these rashes; they are often accompanied by great irritation and itching, and sometimes by a rise of temperature. They occur with all the various preparations of serum tried by the author, and though they pass away, and are not apparently serious, they often cause much discomfort to the patient.

Mya believes the rashes are due to a vasomotor change, or to an alteration in the lymphatic circulation; and Porteous attributes the rash to the idiosyncrasy of the patient; but when a phenomenon occurs almost as often as not, it can scarcely be attributable to the patient's idiosyncrasy. It is possible the rashes are produced by the albumoses contained in the serum, and not by the active principle—the antitoxin—and if this principle can be obtained free from the serum albumens, these disagreeable effects may be prevented. Mr. T. J. Bokenham has directed his attention to this point, and has announced his hope to be able to prepare antitoxic fluid free from albumoses.

2.—*Joint affections*.—Pains in the joints occur occasionally, sometimes with effusion: in rare cases the pains are severe in joints and limbs, and resemble subacute rheumatism.

3.—*En'argement of lymphatic glands*.—Seibert (New York Med. Record, Jan. 19, 1895) records the case of a girl aged  $6\frac{1}{2}$  years, in whom after 10 c.cm. of antitoxin had been injected on two successive days, and five days after she had completely recovered, a rash came out on the face and extremities, in some cases resembling measles, in others scarlatina, followed by considerable enlargement of the glands of the neck. This soon subsided, and the child got well. The strength of the antitoxin preparation used was not known.

4.—*Secondary fever*.—In some cases treated by antitoxin, when the patient has considerably improved and seemed to be convalescent for a few days, the temperature and pulse-rate rise again, and pains occur in the limbs and trunk such as occur in most pyrexial states, but without any evidences of fresh deposits of membrane. After two or three days these symptoms subside.

5.—*Desquamation*.—Cases treated by antitoxin occasionally desquamate; usually this is only slight in amount and branny, but in one case at the London Fever Hospital the fingers desquamated in larger flakes.

6.—*Reported cases of death*.—Ricci (*Suppl. al Policlin.*, April, 1895) records a case in which serum was injected in a case of diphtheria after measles, and the child died of convulsions, but no bacteriological examination had been made, so that it cannot be known if diphtheria was present.

A case is reported of death following preventive injection of antitoxin by **Arel Johnson**, of Chris'iania (*Brit. Med. Journ.*, May 4, 1895), in a boy of two years of age, suffering from spastic paraplegia.

In one case death was recorded by **Wilson** (*Brit. Med. Journ.*, Mar. 30, 1895) after injection of antitoxin for diphtheria, but the report of the case renders it very doubtful whether he was not suffering from scarlatina, and there was an eruption closely resembling scarlet fever and desquamation.

### **12. Preparations of the serum.**

In England the British Institute of Preventive Medicine early made arrangements to immunise horses and to supply the large quantity of serum required for the treatment of the patients in the hospitals of the Metropolitan Asylums Board; a large amount has also been supplied to private practitioners from this institution. **Klein** has supplied serum, which has been used in London and elsewhere. **Aronson's** serum has also been used. At **Fraser's** suggestion the antitoxin has been extracted, and it has been supplied by Messrs. Burroughs & Wellcome in fine golden scales kept in a carefully-sealed tube; these scales are soluble in twice their volume of water, and 1 gramme of the powder is said to be equivalent to 10 centimetres of serum. The dose of the serum usually supplied by the British Institute of Medicine is 20 c.cm.: that supplied by Dr. Klein  $1\frac{1}{2}$ —2 drachms, and that from Dr. Aronson 5 c.cm.

Aronson claims that his antitoxin consists of the antitoxic principle isolated and separated from inert and noxious albuminoid constituents of the serum; it is said to keep twelve months, and is free from the objection raised to some of the preparations of serum, that they contain carbolic acid to prevent decomposition; in Aronson's serum the antiseptic is tricresol. Aronson's serum has the great advantage of the dose being smaller, but rashes may be produced by its injection, as is the case with other serum preparations.

### **13. Dosage.**

As already mentioned, the dosage of the various preparations varies, and no common standard of strength has been adopted in England. Endeavours are being made to increase the strength of the solutions, so that less difficulty may occur in injecting the required strength of antitoxin. The serum has been injected into the veins (*Silva, Gaz. d. Osped.*, March 2, 1895) without signs of local irritation.

It has been suggested that the injection should be made in divided small doses, but this has not apparently produced



favourable results ; two or three injections may be desirable in any case.

#### **14.. Antitoxin injections to produce immunity against diphtheria.**

The injection of antitoxin to prevent diphtheria being contracted by persons exposed to the infection was proposed by Roux, and has been carried out in New York and in other hospitals. H. Biggs, Bacteriologist to the Board of Health, New York, states that in one institution in New York 107 cases of diphtheria had occurred during the 108 days preceding the injection of the serum ; the antitoxin was then injected ; during the next thirty days only one very mild case occurred, and in the following thirty days another case was reported, and shortly afterwards five more patients were attacked. An increase of dose was then injected, and no more cases occurred. The same result was obtained in three other institutions, and in over eight hundred patients treated for the purpose of rendering them immune, he had in no case observed any unfavourable symptom except, occasionally, rashes. Moizard also records excellent prophylactic effects, no child in the Trousseau Hospital for Children contracting diphtheria.

The immunising power, according to Heubner, is not of long duration. Biggs says it lasts only thirty days ; according to others, a dose of 5 c.cm. confers immunity for five or six weeks.

In England diphtheria is rarely contracted by children in hospital from other patients, probably because means are taken as far as possible to isolate diphtheritic patients ; and even where children are not isolated from others with diphtheria, it is the exception for diphtheria to be contracted. It would, therefore, require a very great number of observations on an admittedly not highly infectious disease to prove that the serum injection is efficacious as a preventive of the disease. So far as the evidence goes it would seem to show that immunity can be conferred by antitoxin injections, but they may produce certain disagreeable eruptions, etc., and where possible, isolation is to be preferred as a preventive measure.

#### **15. Period of infectiousness after diphtheria.**

This question, since the introduction of the antitoxin treatment, has become even more important than it was previously, for if more patients recover from the disease there is a likelihood of an increased number mixing with the community generally while still capable of spreading it. There has long been evidence that children while apparently well from diphtheria appeared to infect others, and this is entirely in accord with the discovery that the bacillus of Loeffler may be found in the air-passages of



patients long after all trace of membrane has disappeared. C. B. Shuttleworth, of Toronto (*Lancet*, vol. ii. 1895), found that the shortest period in which the bacillus disappeared was five days, and that it might persist for forty-two days. Sevestre, at the Trousseau Hospital, found the bacillus forty-nine days after removal of the tracheotomy tube, and Abel (*Deutsche med. Woch.*, August 30, 1895) reports a case in which the bacillus was found sixty-five days after diphtheria, though it should be added that the patient had rhinitis during all this period.

It is probable, however, that the period of persistence of the bacillus in the mucous membrane may be very much curtailed by the careful and continued irrigating of the nose and throat, and this, therefore, should always be practised after diphtheria until, and even after, the bacillus ceases to be discoverable.

It will be seen from the above that it is not possible to give a definite *time* limit to the possible infectiousness of diphtheria patients, but there is a very general agreement that they should be isolated from healthy persons until a bacteriological examination shows them to be free from danger to others.

#### **16. Treatment of diphtheria by iodide of sodium and sodium salicylate.**

Kersch, of Vienna (*Bulletin de Thérap.*), recommends the internal administration of a mixture of three grammes of iodide of sodium, five grammes of sodic salicylate, with thirty grammes of syrup and 200 grammes of water; a dessertspoonful every hour. The false membranes are said to be rapidly detached, and no symptoms of iodism have ever occurred.

Iodide of potassium had been previously employed, but the addition of the salicylate of soda is novel, and this salt, according to the author, is a very powerful destroyer of diphtheritic organisms and the toxins they produce. Experiments made on dogs inoculated with diphtheria, showed that the dogs recovered when they were submitted to subcutaneous injections of iodide of potassium and salicylate of sodium.

#### **17. Treatment of diphtheria by menthol.**

F. Kastorsky (*Vratch*, No. 24, 1894) reports thirty-seven cases of diphtheria (in three adults and thirty-four children) treated and cured by painting with a 10 per cent. alcoholic solution of menthol. The paintings (by means of a piece of cotton wool) were usually carried out three times daily. In some cases, however, a single free application was followed by a complete disappearance of false membranes within two days. A marked improvement in the patient's general condition was invariably noticed from the beginning of the treatment. The same simple

method was successfully practised by the author in numerous cases of anginas of various forms, and by Trütovsky in a group of cases of scarlatinal diphtheria. The paintings are said to be painless and quite harmless.

### **18. Treatment of diphtheria by salaktol.**

Walle (*Deut. med. Zeit.*, November 15) introduces to notice "salaktol," a new remedy for diphtheria, which he has used with striking success. The remedy consists of a combination of hydrogen peroxide with sodic salicylate and sodic lactate. In a series of fifty-two cases, including every variety of the disease, and occurring in patients of every age and of both sexes, not a single one ended unfavourably. These cases included twenty-six children of ages from six months to sixteen years, nineteen women and girls aged eighteen to thirty-eight, and seven men aged nineteen to sixty-two. Some of these cases were simple from the onset onwards, others were grave, with much œdematous swelling, whilst others, again, were complicated with scarlet fever. The treatment consisted in careful and systematic pencillings of the affected parts of the throat with "salaktol" every three hours.

### **19. Local treatment of faucial diphtheria.**

Loeffler (*Deut. med. Woch.*, October 18, 1894) emphasises the importance of local treatment based on a bacteriological study such as he has followed out in a large number of cases. Many antiseptic solutions kill diphtheria bacilli in a few seconds. Equal parts of turpentine and alcohol were found much more efficient when carbolic acid (2 per cent.) was added to them. Ferric perchloride kills the diphtheria bacillus very rapidly. The author uses the following application: Alcohol (60), toluol (36), and liq. ferri perchlor. (4). Fully developed diphtheria cultures were killed in five seconds. If a dose of virulent diphtheria bacilli was introduced beneath the skin of a guinea-pig, and followed by  $\frac{1}{10}$  c.cm. of the above mixture, the animal did not become ill, and even after an interval of one to four hours it was saved. This remedy was used in an epidemic of diphtheria. Among seventy-one patients treated out of hospital not one died; of thirty hospital patients, five died; in four of these the disease had already extended into the larynx and nose, and the fifth died of gangrenous pneumonia. The general condition of the patients soon improved; complications were rare. As long as any membrane remains, a further application is made; the remedy should be vigorously used at least every four hours. When decomposition processes are present in the throat the chloride is converted into sulphate, and is inefficient. Menthol was found a useful addition (10 g. to 100 g. of the remedy). Creolin (2 to 3 per cent.) and cresol were found

useful substitutes for the iron, but they are inferior in bactericidal power. The author has also tried the addition of pyoktanin with good effect. In all cases of genuine diphtheria the iron mixture should be used, but where decomposition processes are going on, the other solution, specially that containing cresol, should be tried.

## **20. The treatment of variola with its antitoxin.**

Passed Assistant-Surgeon Kinyoun, U.S. Navy, has reported to the Supervising Surgeon-General of the Marine Hospital Service (*Philadelphia Med. News*, Feb. 2) the results of the employment of the blood serum of a heifer calf, vaccinated four weeks previously, in the treatment of two cases of variola. Fifteen cubic centimetres of the serum were injected subcutaneously when the cases came under observation, and again after the lapse of eight or ten hours. In one case four injections were made, in the other seven. A careful study of the cases, individually and comparatively, led to the conclusion that the treatment exercised a modifying influence on the disease, especially on the eruption. One of the patients died, but it is believed that his life was prolonged at least seventy-two hours by the treatment. It is suggested that as the serum appears to be capable of mitigating the attack of variola, it ought to have the power of rendering susceptible persons refractory to the disease.

## **21. Treatment of typhoid fever.**

Zinn (*Münch. med. Woch.*, May 28, 1895) bases his remarks on some 190 cases treated during the past five years. Calomel was administered at the beginning of the attack or of the relapse. Fluid diet was exclusively used. Painting the tongue with glycerine was found to relieve the distressing dryness. Antipyretic treatment was largely used. A trial was made with malakin, thermodin, sodic salicylate, salol, and chloroform, without any special advantages. Antipyrin, phenacetin, lactophenin, quinine, and baths were chiefly employed. By means of antipyrin the temperature can be kept down nearly to the normal, and the action of the drug on the nervous system is of great value. Phenacetin acts similarly but not so efficiently. The antipyretic action of lactophenin is very considerable and almost constant. It produces marked sweating, but no definite action on the general state was noted. The frequency of the pulse diminished with the fall of temperature, and its quality remained good. No specific action could be attributed to lactophenin. Quinine was also found to have marked antipyretic powers. It is particularly noted that in a number of cases

with very slow defervescence a large dose of quinine often sufficed to produce a permanent apyrexia. The well-known unpleasant effects of quinine were experienced. If not tolerated by the mouth it may be given by the rectum. With the bath treatment, three baths on an average were given in the day, rarely more. The author concludes that antipyrin has no influence on the duration of the disease, and since it would not appear always wise to interfere artificially with the temperature, he has used it but little during the past two years. Quinine is sometimes very useful, but the most effective treatment is by baths. Quinine may be combined with them. The experience of the last few years is not such as to give antipyretic drugs, and especially lactophenin, the first place in the treatment of enteric fever. Regulated bath treatment, alone or combined with quinine, still remains the best treatment.

## **22. Treatment of typhoid fever by antiseptics.**

Surgeon-Lieut.-Col. R. H. Quill (*Indian Med. Gaz.*, July, 1895) advocates the treatment of enteric fever by calomel, given in 2-grain doses every other night for three times, if the case is under treatment during the first eight or nine days, and uses it as a remedy for constipation in  $\frac{1}{2}$ -grain doses. The special antiseptic treatment he advocates is a mixture (given every two or three hours) containing acid. carbolic. puriss. (Calvert), m. iii., made up with chloroform, water, etc., and given with iced water. The chloroform is used in consequence of Werner's experiments showing its toxic effect on the enteric bacillus.

## **23. Treatment of typhoid fever by guaiacol.**

Montgomery (*Therap. Gazette*, Aug. 15, 1895) cured nineteen successive cases of typhoid fever by guaiacol internally and externally, and an occasional  $\frac{1}{10}$  gr. of calomel three or four times a day until slight purgation took place, when it was stopped, but resumed again unless the patient had three or four loose motions every twenty-four hours. Along with this the bowels were frequently washed out with douches of warm water or soap and water, or, if the fever was high, with cold water. The guaiacol was given in from  $\frac{1}{2}$  to  $1\frac{1}{2}$ -drop doses every two hours, according to the tolerance of the patient. The temperature was controlled by sponging, and by the external application of guaiacol, which lowers the temperature in about thirty minutes. This effect lasts from three to four hours; but the amount should be small at first (from 5 to 10 drops), and gradually increased, as it is liable to give the patient a chill. The drug was applied over the abdomen, being slowly dropped on to it, carefully rubbed in, and covered with oil-silk. Montgomery speaks very

favourably of the treatment by guaiacol; but as sponging, enemata, and calomel were used in his cases, it is not possible to say how much of the good effects were due to the guaiacol.

**Carpenter**, of Pottsville, used guaiacol more extensively in an epidemic of typhoid fever, and found its effect very marked in reducing the temperature. Twenty drops, applied to the abdomen, should be the limit of the dose; and good effects are often obtained by much less. It lowers temperature several degrees very rapidly, the fall being usually preceded by a profuse sweating. The patient should be enveloped in blankets, as in some cases severe rigors or chills or signs of severe collapse occur. If one application does not succeed, it may be followed by another.

#### **24. Perforation in typhoid fever treated by laparotomy.**

**Robert Abbe** (*New York Med. Record*, Jan., 1895, p. 1) records the case of a married woman, aged twenty-one, who, after three weeks of typhoid fever, and when convalescence seemed to be commencing, was seized with great pain in the abdomen, vomiting, and collapse. For the next two days the temperature varied from  $102^{\circ}$  to  $102.5^{\circ}$ , the vomiting was less, but the tympanites continued. At the end of the second day her condition became much worse, the pulse became weaker, and the abdomen greatly distended; the temperature was  $104^{\circ}$ , and the tongue was coated.

The abdomen was opened by Abbe by a median incision below the umbilicus; distended coils of deeply congested and greatly inflamed intestine smeared with sticky lymph were exposed; the pelvis and lower part of the abdomen were filled with purulent and fœtid intestinal extravasation, and here the coils of intestine were feebly matted together. Two pints of foul fluid and thick lymph were cleaned out, and the abdomen was irrigated with warm sublimate solution 1 in 20,000, followed by plain warm-water irrigation. The lower part of the ileum showed many thick oval patches in its walls, and one such inflamed Peyer's patch showed a gangrenous perforation a quarter of an inch in diameter. This was closed by interrupted silk sutures, over which two layers of Halsted mattress sutures were placed, this being found the only suture that would hold. No attempt was made to close the abdominal incision, but a large iodoform gauze abdominal tamponade was placed within the abdomen and pelvis. The operation was performed under ether, and took quarters of an hour from the time the administration of the anæsthetic began. She passed a good night; next morning the

pulse was 132, the temperature 102.5°. At the end of forty-eight hours, as she was in good condition, except for tympanites, the tamponade was removed, a loose one reapplied, and 5 grains of calomel were given, which produced numerous loose movements, and the patient felt much better. A little fluid fæces leaked from the wound after the calomel action, showing that the perforation had slightly opened. This continued for two weeks, when it ceased, and the abdominal wound closed rapidly by granulations; speedy convalescence ensued.

A. Parkin, of Hull (*Brit. Med. Journ.*, Jan. 26, 1895), performed laparotomy on a woman aged thirty-two, who at the end of the third week of typhoid fever was seized with symptoms of perforation. The abdomen was opened three hours after recovery from the collapse, and a pin-point perforation found in the ileum, two feet above the cæcum; the ulcer was folded longitudinally on itself and sewn up with a Lembert's continuous suture; the abdomen was freely irrigated, and a Keith's tube inserted. The patient died three days later from peritonitis, but the portion of gut operated on was found at the autopsy quite tight, and probably death occurred from a second perforation; though as only a limited examination was allowed this could not be ascertained.

[Some twenty cases have now been reported in which laparotomy has been performed in enteric fever for perforation of intestine. In many of these there is great doubt if the disease was typhoid fever at all, and the only two cases of recovery in fully substantiated cases are Abbe's case and that recorded by Hook (*Philadelphia Med. News*, 1891, vol. lix.). In Abbe's case two and a half days elapsed before the operation was performed, and his case affords good ground for hope that further successes may occur.—S. P.]

### **25. Perforation of the gall-bladder in typhoid fever successfully treated by abdominal section.**

In the *Lancet* of March 2, 1895, p. 534, Monier Williams and Sheild record the case of a woman, aged thirty-one, in whom, after she had suffered from symptoms of typhoid fever for forty-four days, sudden abdominal pain and local peritonitis occurred. The abdomen was opened by Sheild, the presumption being that a perforation of the intestine had occurred. Purulent lymph was found in the region just below the liver, and the gall-bladder was seen to be intensely congested and much distended. A slight leakage of its contents had occurred from a minute hole near its neck arising from a sloughy circular ulcer in the interior, the

size of a threepenny piece. An incision into the gall-bladder allowed the escape of pus and bile ; the abdominal incision was closed, and the patient made a good recovery.

[Perforation of the gall-bladder is not common in enteric fever, though a recognised complication. This is, we believe, the only case in which it has been successfully treated by operation.---S. P.]



# MEDICAL DISEASES OF CHILDREN.

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## **1. Sterilised milk.**

The use of sterilised milk as a food for infants has not fulfilled the expectations entertained when the method was first introduced. As has been shown by Barlow (*see "Year-Book of Treatment,"* 1895, p. 187), it presents special dangers of its own, and numerous observations have shown that it fails to produce a complete immunity to diarrhoeal diseases, owing apparently to the fact that the processes to which the term "sterilisation" are applied ordinarily do not really sterilise. Flügge (*Zeitsch. f. Hyg. u. Infectiouskr.*, Bd. xvii., S. 272), while admitting that by raising milk to the boiling point for even a short time the organisms of tuberculosis, cholera, diphtheria, and typhoid fever are killed, denies that "sterilisation" for three quarters of an hour, or even longer, renders the milk free from all microbes. By those advocates who are forced to admit the correctness of this statement, it has been urged that the microbes thus surviving are harmless, but Flügge advances reasons for rejecting this view. He found that in milk kept at 90° to 95° C. for some time, various anaërobic bacilli could subsequently be cultivated at a temperature of 30° C. These microbes, of which the most common was the bacillus butyricus of Botkin, rendered milk in which they grew, toxic to guinea-pigs. Aërobic bacilli, or their spores, also survived even in milk which had been kept at the boiling-point two hours. He enumerates twelve varieties. They produce peptones, and are capable thus, indirectly, of causing diarrhoea. Flügge, therefore, concludes that the so-called sterilised milk of commerce is "a thoroughly unsafe and untrustworthy preparation," the use of which ought to be absolutely forbidden. He considers that the safest way to treat milk intended for the nourishment of infants is to keep it at the boiling-point for ten minutes, and then if it is not to be consumed within at most twelve hours, to cool it as rapidly as possible to 18° C. Rodet (*Rev. d'Hyg.*, xvi., No. 12) finds that milk can be really sterilised

only by temperatures of 110° to 120° C., a method which alters greatly the colour and taste of the milk and is possible only with a special and expensive plant. Pasteurisation at 75° to 80° C. destroys organisms generally regarded as pathogenic, and delays the occurrence of fermentation, but is not sufficient to afford complete protection to infants against septic diarrhoea (probably for the reason given by Flügge). Soxhlet's method, properly carried out, does, he believes, produce perfect sterility. Where this method cannot be carried out, Rodet recommends that the milk, as soon as possible after its receipt, should be brought to the boil, and then poured immediately into clean bottles rinsed out with boiling water, the quantity put in each bottle being just sufficient for one meal. Bendix has discussed Flügge's observations and conclusions with great care (*Jahr. f. Kinderhklde.*, Bd. xxxviii., S. 393), and while admitting the general accuracy of Flügge's facts, denies the assertion that the use of sterilised milk has not diminished the amount and severity of gastro-intestinal diseases in infants. He urges that as the "sterilisation" of milk, even though theoretically imperfect, does obviate the liability to the communication of certain specific diseases, and diminishes the number of the organisms of fermentations and of decomposition in the milk, its use ought to be prescribed when for any reason an infant has to be weaned from the breast. As to the nutritive value of sterilised milk, he found that in healthy children the substitution of sterilised for boiled milk produced no effect on the assimilation of nitrogen and fat, so that the sterilised is not less easily digested and absorbed than the non-sterilised milk. In children whose digestion was imperfect, the rate of absorption was diminished, but not more with the one than with the other kind of milk. Though the odour and taste of the milk are altered by sterilisation, infants take it readily, or if they have become accustomed to milk uncooked or simply boiled, their objection to the sterilised milk is overcome in a day or two at most. No unfavourable symptoms, in particular no symptoms referable to the digestive system, were observed as a consequence of the change to sterilised milk, but on the contrary, the general condition and the appetite were good, the stools normal, vomiting did not occur, and the weight did not diminish, when it did not increase. Troitzky (*Arch. f. Kinderhklde.*, Bd. xix., S. 97) recommends a sterilisation apparatus designed by Tedeschi, and states that milk is rendered quite sterile if kept at the highest point of this apparatus for one and a half to two hours. He considers that the changes produced in the milk by the process of sterilisation at 100° C. are not sufficient to diminish its importance as a substitute

for woman's milk. Among these changes mention should be made of the fact, apparently established by **Renk** (*Rev. d. Mal. de l'Enf.*, T. xiii., p. 40), that in sterilised milk when kept, the fat passes out of emulsion so that when it is boiled it runs together into big drops, and cannot be emulsified again by shaking. This change begins to be rapid after the milk has been kept a week, and at the end of a fortnight nearly half the fat is at the surface. By the use of such milk an infant is liable to be deprived of much of the fat, and the loss of this is well known to bring many troubles in its train (constipation, and perhaps rickets), apart from the mere loss of fat. The use of sterilised milk long kept is to be condemned for this as for other reasons. In this connection it must be remembered that the complete sterilisation of milk, in order that it may be kept for weeks or months, even assuming that it were desirable to resort to such a system, is a special problem, and that there is no reason to suppose, *à priori*, that such an aliment is necessary, or even desirable for infants. As a matter of fact, human milk drawn direct from the nipple is seldom sterile. **Honigman** made seventy-six examinations of the milk of sixty-four women recently confined, and on four occasions only found the milk sterile; and **Ringel**, experimenting with the milk of twenty-five women, found the milk sterile three times only. Of **Ringel's** cases, twelve were in good health, and in the milk of eleven of them staphylococci were found.

## **2. Starchy foods in infancy.**

Some interesting observations on the digestion of starchy foods in infancy, and of their usefulness in certain pathological conditions, have been made by **Heubner** (*Berl. klin. Woch.*, No. 10, 1895). Physiological researches have shown that starch can be transformed into sugar in the digestive canal of even young infants, but this fact has not, he says, as a rule, been acted on in practice. Experiments were made with infants of whom the youngest was aged seven weeks, by giving them known quantities of starch, and the amount of starch in the fæces was estimated by **Carstens**. In all cases considerable quantities of starch were absorbed. Although it is not suggested that starchy foods could serve as a complete diet for healthy infants, it is yet thought that their use may be, under certain pathological conditions, of great temporary value. Thus, in digestive disorders, when milk cannot be digested, and when, therefore, it is desirable to stop its use altogether, it may be replaced by starchy food (thin gruels). The advantages of the substitution are in **Heubner's** opinion threefold. In the first place, considered generally, the digestion of starches is

easier than that of albumens and fats, and calls for less expenditure of energy. In the second place, the transformation of a starch into sugar is effected chiefly by the saliva, so that the intestines being called upon only to absorb so much of the converted starch as may reach them are placed in a state of almost complete physiological repose. In the third place, starchy solutions are not good culture media for proteolytic bacteria, and consequently they have a certain aseptic influence. The meals he prefers are those of rice and oats, and the best strength he finds to be about one ounce of meal to a pint of water. The child may be kept upon this diet for as long as a week or ten days if necessary, but not longer. The meal is well rubbed up with cold water, a sufficient quantity of boiling water poured on, while stirring, and the mixture boiled for twenty minutes or half an hour.

### **3. Gastro-intestinal infections.**

Thiercelin in a Paris *Thèse*, has given an account of the method of treating severe gastro-intestinal disorders in infants and young children followed by M. Hutinel at the Hospice des Enfants Assistés. The title which he uses for his thesis is "Gastro-Intestinal Infection," avoiding the terms enteritis or gastro-enteritis for the reason that "it is not proved that in cases of acute infection the intestinal mucous membrane is altered, or, at any rate, that the lesion is primary." "Infection" is, however, itself a question-begging term, since Heubner (*Rev. d. Mal. de l'Enf.*, Oct., 1895), for instance, would reply that all that can be affirmed is that the diarrhoea, fever, and exhaustion are due to the absorption of a toxin, or toxins, from the alimentary canal; such toxins may either be manufactured in the intestinal canal by microbes acting upon the food, or may be introduced with the food. As a rule, the intestinal mucous membrane does not display any structural alteration, and even when it does, it may be difficult to connect the changes observed with any microbe present. Thus, in one case of very acute infantile cholera in which the mucous membrane of the whole of the small intestine showed structural alterations, the only microbes present were cocci, not even the bacillus coli communis being found. The intestinal lesions could not, in his opinion, be attributed to the cocci, so that they must have been due to toxins. Thiercelin states that the treatment adopted at the Hospice des Enfants Assistés in cases of gastro-intestinal affections of the acute type with fever is as follows. First the stomach is washed out to remove all putrescent material. This usually has the effect of checking the vomiting, and is

repeated if the vomiting recurs. Next the large intestine is washed out with a large quantity (from one and a half to two and a half pints) of boiled water which has been cooled. This copious injection of cold water will lower the temperature (nearly two degrees in some cases). Next a dose of calomel is given ( $\frac{3}{4}$  gr. under one year,  $1\frac{1}{2}$  gr. from one to two years), and nothing is allowed to be taken as food except "eau albumineuse," or "grog glacé." If the diarrhoea continues, the injection may be repeated with advantage after each stool. After some hours ("in the evening") the administration of lactic acid is commenced. The dose should be about  $2\frac{1}{2}$  minims for a child of one year, and about 4 minims for a child of two in flavoured water every two hours, or a proportionally smaller quantity every quarter of an hour. In either case the "eau albumineuse" is given alternately with the lactic acid. Lactic acid acts beneficially in acute cases in two ways: It is an antiseptic, killing the pathogenic microbes or diminishing their vitality, and when mixed with toxins it lessens their activity. In more chronic cases brought about by ordinary errors of diet, and in acute cases which have become chronic, it is useless or worse, since it retards digestion. In such cases benzo-naphthol gives good results, the usual prescription being—benzo-naphthol, 7 to 15 grains, salicylate of bismuth, 15 to 22 grains, in divided doses during twenty-four hours. If, when the child comes first under treatment the general and nervous symptoms are prominent, or if the temperature is above  $103^{\circ}$  F., a bath at  $82^{\circ}$  F. is given for six minutes, and is repeated every time the temperature reaches  $102^{\circ}$  F. If the child has convulsions, cold affusions to the head are practised in addition. After twenty-four or thirty-six hours there may be so much improvement that the suckling or the administration of milk may be resumed; but this must be commenced with the greatest caution. As a matter of fact, I have found that if a little sugar is added to the albuminous water, the child will, for some weeks, continue to improve, and even to grow fat. Albuminous water, commonly called in England "egg-water," is made by stirring up in half a pint of cooled boiled water the white of one egg. When milk cannot be borne by a convalescing child Thiercelin recommends kephyr,\* a bottle a day. If the child is in a state of collapse (algid stage) when it comes under treatment, it is at first subjected to the same routine, except that it is given hot alcoholic drinks in

\* Kephyr contains, as a consequence of the fermentation which the milk from which it is prepared has undergone, both lactic acid and alcohol.

place of the egg-water, or iced drinks. If the collapse is marked, the child is put into a *couveruse*, or wrapped in cotton wool and surrounded with hot-water bottles, and every three hours it is given a mustard bath at 100° F. for five or six minutes, and then rubbed dry with a hot flannel. If the pulse does not improve, a hypodermic injection of caffein is given (caffeine, 12 grains, benzoate of sodium, 15 grains, distilled water, 1 drachm; 3 to 4 drops for a child of two years, 2 for a child of one year).<sup>\*</sup> For washing out the stomach a small œsophageal catheter, or a urethral catheter (No. 30, Charrière) is used. This is, as a rule, very easily done. A funnel having been attached to the free end, about four or five ounces of boiled water, sometimes rendered alkaline, are introduced into the stomach. This is, as a rule, rejected spontaneously, bringing with it fragments of curd, etc. The washings are repeated until the water comes away quite clear. In febrile cases the water used is cold (boiled), but when collapse is present it is made warm. At a later stage, if the child fails to make progress, in addition to other more customary restorative means, hypodermic injections of artificial serum are given. The serum used is Hayem's,<sup>†</sup> and the quantity about ʒij to ʒijss, thrice a day; the solution must be perfectly sterile, and the needle should be heated in the flame each time before use. How the beneficial effect attributed to these repeated small injections is to be accounted for Thiercelin admits himself unable to explain, and there appears to be some doubt whether they do not tend to produce anæmia. In extrême collapse in the algid stage it is, however, strongly recommended that an intravenous injection of a large quantity of the artificial serum should be given (500 g.—over a pint). If a vein cannot be found, the injection should be made into the peritoneum, or into the subcutaneous tissue.

#### 4. Treatment of oxyuris vermicularis.

A. Schmitz has described (*Jahr. f. Kinderhklde*, Bd. xxxix., S. 121) the method of treating oxyuris vermicularis used with considerable success in Ungar's clinic at Bonn. A mild laxative is first given, compound liquorice powder in the youngest children, castor oil and calomel in older children. Naphthalin is then given for two days. The dose of naphthalin ranges from 2½ grains for a child of a year and a half to 6 grains to a child of twelve years. The drug may be given without admixture or with a little sugar to young children, or in capsules to older children.

<sup>\*</sup> This solution should be sterilised by boiling for a quarter of an hour.

<sup>†</sup> This is a solution of sulphate of sodium (1 per cent.) and sodium chloride (0·5 per cent.) in distilled water.

In either case the dose is divided into eight powders, one of which is taken four times a day between meals. (Ungar has recently divided the dose into ten parts). The only precaution to be taken is not to allow the child to take any oil or fat during the course. Naphthalin, insoluble in secretions of the alimentary canal, is soluble in fats, and their ingestion might lead to solution of the drug, followed by absorption and toxic symptoms. This absorption also would withdraw the drug from the lower part of the intestinal canal where its therapeutic action is desired. In the cases recorded by Schmitz, forty-six in number, no poisonous symptoms were observed; in one case only was painful micturition observed three days after the end of a second course of naphthalin. After the first course all treatment is suspended for a week, when the course is repeated. After an interval of a fortnight a third, and after further intervals, a fourth and even a fifth course may, if necessary, be given. In twenty-six cases the patients were freed from the oxyuris after at most five courses, in the majority after three. In the twenty remaining cases some improvement was noticed but it was not maintained; it is suggested that in these cases reinfection may have taken place. From these results it is concluded that naphthalin is both a safer and a more effectual remedy than santonin. Ungar also makes use of injections, using for this purpose the *Liquor Aluminii Acetici*, P. G., in the strength of  $\text{ʒij}$  to the litre ( $1\frac{3}{4}$  pints).\* This astringent and antiseptic solution reaching the upper parts of the large intestine hastens the death of the oxyurides, and, at the same time, diminishes the irritation of the mucous membrane produced by the parasites. If the bowels do not act spontaneously after each course of naphthalin a mild laxative should be given.

### 5. Sporadic cretinism.

Byrom Bramwell (*Edin. Hosp. Reps.*, Vol. iii., 1895) has summarised his experience in the treatment of sporadic cretinism, and publishes records of five cases. He puts aside the proposal to transplant the thyroid gland on the ground that, in those cases in which it has been done, the gland has died and been absorbed. He finds the dried gland in tabloid form to be a most satisfactory means of administration and especially convenient because it

\* The method of preparing this solution is given in Martindale's and Westcott's *Extra Pharmacopœia*, Eighth Edition, p. 58. Sulphate of aluminium (true) 300 parts, Acetic Acid, B.P. (by weight) 340 parts, Precipitated Carbonate of Calcium 130 parts, Water 1000 parts. The sulphate is dissolved in 800 parts of water and the acetic acid added. While constantly shaking, the carbonate of calcium dissolved in 200 parts of water is added by degrees. It is then set aside for twenty-four hours, and shaken constantly; then decanted, the sediment pressed, and the solution filtered.



permits the dose to be accurately adjusted. To this he attributes much importance, since too large a dose may produce very unpleasant symptoms—profound gastro-intestinal disturbance (furred tongue, vomiting, diarrhoea), great prostration, profuse sweating, myalgic pains and headache, and a feeling of disagreeable flushing and discomfort. In order to avoid the production of this condition of “acute thyroidism,” he begins with a dose of  $\frac{3}{4}$  to  $1\frac{1}{2}$  grain daily according to the age of the child, and increases the dose carefully. During the early stage of the treatment—that is, while the myxœdematous condition is being removed, he finds 5 grains ( $\frac{1}{16}$ th of an average sheep’s thyroid) once daily to be, as a rule, a suitable dose. At a later stage, when the object of treatment is to prevent the redevelopment of the myxœdematus condition, and to favour a healthy growth of mind and body, 5 grains every second, third, or fourth day, will probably be enough, though upon this point experience is as yet hardly sufficiently long to permit a positive statement to be made. In the case of a cretinous girl aged nineteen, whom I have had under treatment for some time, the pain referred to the back, probably myalgic in nature, was so severe with even small doses and so persistent, that it was difficult to persuade her to persevere. Eventually it subsided while she was taking 5 grains a day, the maximum dose which she has taken. Dr. Bramwell recommends that the patient should, during the early stage of the treatment, be kept on a diet of milk, or of milk, fish, and white meat. The improved nutrition is commonly attended by a great increase of appetite, and some patients become extremely fat. The growth of the body in length is usually considerable, and often surprising. The eruption of the teeth is hastened, and the teeth cut under the thyroid treatment are sound, even if those cut before were not. Constipation, which is a frequent accompaniment of cretinism, generally disappears in a short time. The symptoms to which Byrom Bramwell applies the term “acute thyroidism” Marie attributes not to the material of the thyroid gland taken by the patient, but to the toxic products accumulated in the organism and rapidly thrown into the circulation when the treatment is commenced, during, that is to say, the first stage of Byrom Bramwell. To this stage Marie proposes to apply the portentous term “demyxœdematisation.” In support of this view Marie quotes a case (cf. Oddo, *Méd. Inf.*, Jan. 1895) in which these symptoms were produced; the treatment was stopped, but resumed shortly with larger doses, which were not followed by any unpleasant symptoms. According to the observations of Zum Busch (*Epit. Brit. Med. Jour.*, Sept. 28th, 1895) on two healthy men thyroid feeding produces in health no

effect except a slight change in the body-weight, and in the amount of urine and urea excreted. Marie's view is, perhaps, confirmed also by Bramwell's observation that "most patients affected with myxœdema and sporadic cretinism are very susceptible to the action of the thyroid extract," and that, as a rule, this susceptibility seems to diminish rather than to increase after the remedy has been given for a considerable length of time. As to the ultimate result of the treatment in cretinism, Byrom Bramwell suggests that much must depend upon the age of the patient when the treatment commenced. In slight cases coming under treatment early, he thinks that, judging from the remarkable effects produced in two or three years, a very considerable development—possibly the full development—of both body and mind may ultimately be obtained; whereas, in severe cases of long standing the degree of improvement which can be expected must be small. This consideration emphasises the importance of early diagnosis.

#### **6. Rheumatism and chorea.**

Salophen has recently been used with some success in the treatment of acute rheumatism and chorea. It is a compound of salicylic acid and acetylparamidophenol. It is obtained as a crystalline, white, tasteless, inodorous powder insoluble in cold water, and but little soluble in hot. It is unaffected by acid solutions, but is rapidly decomposed in alkaline solutions yielding 51 per cent. of its weight of salicylic acid. It is administered as a powder, and passes through the stomach unaltered; in the intestines it is decomposed slowly, and Marie (Huot's *Thèse*, Paris, 1895) attaches much importance to giving it in frequent small doses. In a girl of sixteen with chorea he gave 4 grammes (3 j) in six doses during twenty-four hours. Huot, in the case of a girl of eleven, also suffering from chorea, gave 3 grammes in six doses daily. In both these cases, which appear to have been of more than average severity, recovery was rapid. In Marie's case the girl appeared to have recovered completely in eight days, in Huot's in twelve. Drews of Hamburg (*Epitome, Brit. Med. Jour.*, Feb. 16th, 1895) reports a case of chorea with systolic murmur, in a girl aged thirteen, in whom the movements ceased and the murmur disappeared after taking 5 grammes of salophen daily for twelve days. Drews had also good results from this drug in acute rheumatism. The ages of the children varied from seven to fourteen years, and the dose ranged between 3 and 5 grammes a day. The pain, as a rule, abated on the first day, and together with the swelling of joints and fever, subsided in three or four days. In twelve out of fifteen cases treated, copious perspiration occurred about half-an-hour after taking the drug,

but this did not seem to have any unfavourable effect on the general state. No other secondary effects such as the tinnitus, delirium, etc., sometimes observed after salicylate of sodium, were produced. In five cases of acute rheumatic affections of the neck muscles he obtained good results also. Huchard (*Journ. de Clin. et de Thér. Inf.*, Feb. 28th, 1895) has insisted on the fact that as salicylate of sodium is very rapidly eliminated from the body the quantity to be taken daily ought to be given in small doses at short intervals, and that in particular the drug should not be stopped at night. He gives 4 to 8 grains every two or three hours. Marie attributes the favourable effect of salophen in part, at least, to the comparatively slow, and almost continuous liberation of salicylic acid in the intestines.

### 7. Insomnia.

Trional appears to be a valuable hypnotic in the insomnia of children. Moncorvo (*Epit., Brit. Med. Journ.*, Oct. 5th, 1895), in a communication to the Académie de Médecine of Paris, stated that it was speedier, more certain, and better borne than any other narcotic he had used in children. The results of this rather enthusiastic "therapeutist" are supported by Claus (*ibid.*, Feb. 9th, 1895), who found trional specially useful in the sleeplessness of chorea, in convulsions, and in pavor nocturnus. He did not find it useful in tuberculous meningitis, thereindiffering from Moncorvo, who describes its action in this disease as "truly wonderful." Moncorvo recommends it in the insomnia of neurotic children, and in sucklings suffering from digestive disturbances. It was useful also in the early stage of measles, smallpox, and scarlatina, when, as is often the case, restlessness was a distressing symptom. Both observers agree that the drug was of little use when the sleeplessness was due to pain. Moncorvo gave from 3 to 15 grains during the twenty-four hours, according to age and other circumstances. Claus gave to infants from one month to one year old 3 to 6 grains, to children of six or ten years 18 to 23 grains. Moncorvo administered it to young children in hot sugared milk, by which means its somewhat bitter taste was concealed. The dose should be given from half-an-hour to an hour before the time when the effect is desired.

### 8. Whooping cough.

Laubinger (*Jahrb. f. Kinderhklde.*, Bd. xxxix., S. 141) recommends the administration of quinine by hypodermic injection in very severe cases or if the child refuses to take the drug by the mouth. The duration of the disease does not appear to have been notably diminished, but the number and severity of the attacks of paroxysmal cough were lessened in all cases. In some this was

noted on the first day on which the injections were given, in others only after an interval of two, three, or even ten days. The salt used was the bichloride, dissolved in distilled water. Three solutions were kept—1 in 1, 6 in 14, and 5 in 15. The dose used was  $1\frac{1}{2}$  grain for each year of age. In delicate children rather less was given. The dose was repeated twice daily. The injections were made into the back, and the resulting swelling massaged gently to produce absorption. The injection, Laubinger states, is not painful, though both children and parents frequently objected to it, so that the treatment had to be abandoned in many cases. It may be noted that for internal administration the tannate of quinine seems to be preferable to other salts; it is much less bitter than the sulphate, and when mixed with sugar, is taken in powder by children without difficulty. The dose should be three times as great as that of the sulphate. Chateaubourg (*La Méd. Inf.*, April, 1895) states that he has good results from the hypodermic injection of guaiacol and eucalyptol (10% of each in sterilised oil). The number of whooping attacks diminished, vomiting ceased, and the appetite and general condition improved. The quantity injected was about 3 ss. or more, and the injection was repeated daily. Raubitschek recommended very strongly some time ago the local application of a solution of perchloride of mercury (1 in 1000) to the throat as a mode of cutting short attacks of whooping cough. He applied a swab of cotton wool soaked in the solution to the back of the tongue, made gentle pressure so that some of the fluid ran down on to the epiglottis and the neighbouring parts, and in withdrawing the swab brushed the tonsils, uvula, and soft palate. Hochstetter (*Rev. d. Mal. de l'Enfance*, April, 1895), who put the method to the test, reports that his results were far less brilliant. To obtain any effect at all it was necessary to use a solution of 2 in 1000, and to make the applications far more often than Raubitschek, who resorted to them only every other day in mild cases, and daily in more severe. Wells and Carré (*Lancet*, June 8th, 1895) speak favourably of cocaine. They state that under its influence the general condition improves, thirst and anorexia disappear, the cough becomes less frequent, and the child sleeps better. In some mild cases they believe that the disease was cut short. The salt used was the hydrochlorate, dissolved in water, and the dose varied from  $\frac{1}{16}$ th grain thrice a day for an infant of eight months to  $\frac{1}{3}$ rd grain thrice a day for a child of six years.

# ANÆSTHETICS.

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## 1. Local anæsthetics.

**Schleich** (*see* "Year-Book of Treatment," 1895, p. 197) gives results of 3,000 cases treated by his infiltration method. He regards the drugs used as of no importance. Cocaine, 3 gr.; morph.,  $\frac{1}{3}$  gr.; sod. chloride, 3 gr.; aq. destill.,  $\mathfrak{z}3$ . Mix, sterilise, and add 3 drops of carbolic sol., 5 per cent.

**Lewis** (*New York Med. Journ.*, Aug. 31, 1895) has used the method in genito-urinary surgery, and speaks well of it

**O. Bloch**, Albury (*Australasian Medical Gazette*, June 15, 1895), says the dangers of general anæsthetics made him adopt Schleich's plan. His system is based on two principles: (1) local œdema, produced by a fluid which deadens sensation but does not injure the tissues; (2) ischæmia, produced by pressure and cold (temp. of solution). Solutions used:

	I.	II.	III.
Cocaine ... ..	gr. 4	gr. 2	gr. $\frac{1}{5}$
Morphine ... ..	$\frac{1}{2}$	$\frac{1}{2}$	gr. $\frac{1}{10}$
Common salt ... ..	4	4	4

Sterilised distilled water  $\mathfrak{z}4 + 3$  drops 5 per cent. carbolic acid solution.

Solution II. is generally used, but he employs the first in more inflamed tissues, and the third for prolonged operations.

A Pravaz syringe is inserted *into*, not *under*, the skin, parallel to it, just far enough to cover the slit. Enough force is used to inject and produce an œdematous spot (wheal). The syringe is now inserted into such wheal, and another started, and so on. The same proceeding is followed for the deep tissues. It is said to lessen bleeding. In opening abscesses, some of the contents should be liberated to avoid pain, and healthy tissue near the abscess should be infiltrated.

A plan described by **Letang** (*Gazette de Gynécologie*, Jan., 1895; abstracts from *Poitou Médical*) for producing anæsthesia is thus given. Into the region to be rendered anæsthetic injections

are made of either glycerine, oil, or sterilised water, lowered to a temperature below freezing-point. He used as his injecting solution: pure neutral glycerine, 3 ounces; sterilised water, 6 ounces; ether, 90 grains. Ten injections of 150 grains are safely made in the case of an adult. The solution is cooled to 140° F. with a carbonic acid apparatus, or by means of ethyl chloride; and as soon as the required temperature is obtained, interstitial injections are made with a syringe.

**Lucas-Championnière** (*Académie de Médecine*) uses for local anæsthesia 20 g. of guaiacol in sterilised olive oil. For extraction of teeth, opening abscesses, scraping lupus patches, etc., he uses 5 to 10 centigr. of guaiacol—i.e. two syringes of 20 per cent. solution some seven to eight minutes before the operation. **Laborde** attributes the anæsthesia to the vaso-constrictor action of the guaiacol. **Magitot** finds an eschar often occurs at the point of puncture. **Ferrand**, who has used guaiacol as a paint, finds it analgesic, but cautions against injecting it, as it may cause collapse and hypothermia (*Lyon Médical*, Aug. 1, 1895, p. 548). Interstitial injection (1 in 10; 1 in 20) produces a more tardy anæsthesia than cocaine, but somewhat more persistent.

According to a writer in the *New York Medical Journal* (Sept. 21st, 1895), the troubles which sometimes arise from the use of cocaine in urethral surgery are due to too strong a solution, or to too strong a dose. The alarming symptoms are rather those of highly nervous outbreak in nervous subjects than those of cocaine toxæmia. The use is recommended of 2 c.cm. of a 2 per cent. solution; in cases of internal urethrotomy of the distal end of the penile urethra, not deeper than three inches, a 4 per cent. one may be employed. The solution should not remain in the deep urethra longer than seven minutes—usually five is long enough—and care should be taken to empty the urethra. There is a special susceptibility in some people. In one case 3j of 10 per cent. solution was injected, and was followed by toxic symptoms, faintness, cyanosis, unconsciousness, shallow breathing; but recovery took place.

**J. W. Stickler**, of Orange (*Med. Rec.*, July, 1895), in an original research shows antagonism between morphine and cocaine. After 18 grs. of cocaine had been taken,  $3\frac{1}{2}$  of laudanum gave sleep, and the patient got well. In another case, a patient who had taken 3iii of laudanum was given  $\frac{3}{4}$  gr. of cocaine, in divided doses, in two hours, and became quite well. Stickler also made researches on pigeons and dogs and on four men, with the same result. His conclusions are (*Med. Rec.*, Sept. 28): Pigeons are

very susceptible to cocaine ;  $\frac{1}{4}$  gr. kills in a few minutes ; toxic doses cause convulsions ; respiration is quickened, gasping, and shallow ; the pupils dilated ; the heart beats more rapidly and more forcibly ; the gait is staggering ; small doses cause vomiting and tremors. If given hypodermically, these effects are delayed ; if injected into the abdominal cavity, they are most quickly produced ; if an equivalent dose of morphine was given, death was delayed. Incidentally he found that atropine did not interfere with the action of the cocaine. As regards men, while morphine contracts, cocaine dilates the pupils ; morphine retarded, cocaine accelerated and strengthened the pulse ; morphine lessened the number of respirations, cocaine increased them ; morphine induced muscular fatigue and drowsiness, cocaine energised ; morphine dried the mouth and pharynx, and lessened kidney action, cocaine moistened and increased renal function.

The *Practitioner* for February, 1895, gives the following formula for a spray to produce local anæsthesia :—Menthol, 3 grs., chloroform, ʒv, and ether, ʒj. The anæsthesia persists for five minutes.

## 2. General anæsthetics.

**Chloroform.**—Mr. Gill, in the St. Bartholomew's Hospital Reports, gives his experience of this anæsthetic. The sanguineous take it well, he thinks, the lymphatic are liable to depression. When much blood loss is anticipated, *e.g.* in cases of removal of post-nasal adenoid growths, the use of ether prior to that of chloroform is advisable. The sanguineous feel depletion later in narcosis and this depression should be *anticipated* by rectal stimulating injections. He emphasises the importance of graduating the quantity of the anæsthetic according to the age of the patient, the child and the aged taking less than the adult. He points out that "while the patient remains anæsthetic his resistance to the action of the chloroform diminishes." He relies upon the change in the character of the respiration to inform him whether the patient has lost consciousness—the irregular breathing of consciousness passes into the automatic inspiration of oblivion. He judges of the dose required when unconsciousness is arrived at by the size of the pupil. A small pupil implies safe narcosis, and he aims at obtaining a pin-point pupil. Any interference with respiration produces a dilatation of the pupil which implies danger. He points out that respiration is altered in its character by changes made in the patient's posture, and so cannot be accepted as an absolute guide. The pulse is of value not as an indication of the depth of the narcosis, but as showing the onset of the depression or collapse to which the patient may



fall a victim during a prolonged operation when much shock is provoked. Mr. Gill's remarks about the pupil are in confirmation of those made in 1886 by M. Budin, and deserve our careful attention. In persons who fear the anæsthetic a stimulant may be given. Changes in posture should be considered, and if they determine mechanical interference with respiration, the quantity of the chloroform should be lessened. To persons depressed by fear Mr. Gill would not give chloroform. Dilatation of the pupil, when the stage of unconsciousness is reached, may be due to (1) struggling, (2) stomachic disturbance, (3) fear, (4) pyrexia, anæmia, emaciation, (5) an overdose of chloroform. This last condition is distinguished from the others by the following characteristic signs: (1) sluggish reaction of the pupil to light, (2) absence of brilliancy of the eye, (3) cornea loses lustre, (4) breathing is laboured, (5) pulse is full, and the veins are distended.

The pupils also dilate in severe hæmorrhage, and from surgical shock, *e.g.* tying the spermatic cord.

Neve (*Lancet*, 1895, vol. i., p. 647) read a paper before the Indian Medical Congress in which he dealt with difficult cases of chloroform administration. He gave a record of 6,000 cases in the Kashmir hospital without a death, but he had met with a few cases each year in which dangerous symptoms had occurred, *viz.*—(1) primary syncope from fear, (2) laryngeal spasm, (3) secondary syncope from shock due to insufficient chloroform, and also from a proper dose acting upon non-oxygenated nerve-centres, (4) tertiary (sometimes secondary) syncope connected with vomiting, (5) apnœa, due to (a) mechanical causes, (b) spasm of the larynx, (c) toxic action of an overdose (relative or absolute) on the nerve-centres.

According to Baizer (*Centralbl. f. Chirurgie*), diabetics incur special risks under chloroform. After from twenty-four to forty-eight hours they become restless, then drowsy, and finally pass into coma. The necropsy in his cases showed no clue as to what was the part played by the chloroform, as acetone is commonly formed after chloroform inhalation, even when no glycosuria is present.

As a means of resuscitating those apparently dead from chloroform, Labbé (Discussion before the Paris Academy of Medicine; see *Bulletin de l'Acad.*) regards rhythmic traction on the tongue as superior even to artificial respiration. He believes, however, that the latter should in every case be persisted in for a long time, and cited a case in which life returned after nearly half an hour of artificial respiration. M. Verneuil also found lingual traction

most valuable, and regarded Laborde's method as of the first importance in chloroform asphyxia. He also practised flagellations and flicking the abdomen with a wet towel.

**Alexander Haig** (*Lancet*, 1895, vol. i., p. 481) suggests that the rise of blood pressure which occurs as the patient is beginning to come out of chloroform acts prejudicially upon the heart, and may even provoke syncope. This danger is greater in proportion as the rise is more sudden and more pronounced and the heart is weaker. Further, an excess of uric acid in the blood means an increased blood pressure. A patient, especially of the uric-acid diathesis, would when only partially under chloroform have a rising blood pressure. If, now, any sensory stimulus occurs, such as would be conveyed by pain, the blood pressure would still further run up. This sudden increase in blood pressure would, Haig believes, act disastrously upon the heart, and induce a fatal syncope. Several cases are cited in his paper as affording support to this theory.

The employment of cocaine, associated with chloroform or ether, has been recommended by several surgeons, but **Rosenberg**, in the course of two elaborate papers ("Eine neue Methode der allgemeinen Narkose": *Berliner klin. Wochenschrift*, Jan. 7, 14, 1895), recommends a novel procedure. His leading contention is that chloroform deaths are due mainly to reflex inhibition of the heart, and that the stimulus is usually, if not always, conveyed along the fifth pair of cranial nerves, and originates in the irritation of the nasal mucous membrane. It may be remembered that Brown-Séquard demonstrated the same fact, only he regarded the fibres of the pharyngeal plexus as the starting-point of the reflex. Rosenberg seeks to obviate this danger by painting the mucous membrane of the nose with cocaine before the chloroform is given. He further insists that chloroform should be presented drop by drop, and in every case should be entrusted only to the hands of a competent and experienced medical man. The same idea has, it would appear, occurred to **Robertson**, of Newcastle (*Brit. Med. Journ.*, 1895, vol. i., p. 14). He employs a 2 per cent. solution of cocaine, and finds it lessens the hæmorrhage in operations upon the naso-pharynx. Rosenberg supports his views by an appeal to experiments upon the lower animals, and demonstrates that the conveyance of stimulation such as might cause reflex inhibition is certainly lessened or annulled by the employment of cocaine antecedently to chloroform. In this relation—reflex death under chloroform—the following experience is important. **Stratton** (*Occidental Medical Times*, Jan., 1895, p. 8) describes a case of death occurring during incomplete

anæsthesia from chloroform, due, he believed, to nerve shock. Death may arise (1) during the first few breaths of chloroform, from sudden shock of the anæsthetic upon the cardiac ganglia, causing paralysis. It is due to (a) excessive dose, without sufficient dilution, (b) excessive susceptibility to the drug. (2) Cardiac paralysis from reflex inhibition—as when the operation is commenced before full anæsthesia is established. Such deaths are especially prone to occur during operations on the area supplied by the fifth pair of cranial nerves; (3) from suffocation due to tetanic fixation of the chest-walls; (4) during the stage of complete relaxation, and even after the anæsthetic has been removed, from syncope or failure of respiration; or (5) death may be due to asphyxia from paralysis of the tongue, or from general depression of the functions, due both to the chloroform narcosis and to the shock of the operation.

**Langlois and Maurange** (*Gazette Médicale de Paris*, Aug. 24, 1894) recommend the employment of oxy-sparteïn injections before the administration of chloroform. They find that sparteïn acts as a tonic to the heart, regulating and quieting its action. Hurtle, to whose research they refer, found that oxy-sparteïn possesses this power to a greater extent. Vagal excitability, also, is lessened, and blood pressure is maintained during prolonged operations. Smaller doses of oxy-sparteïn are required than of sparteïn, and may be used alone or with morphine.

#### **Mixtures of chloroform and ether.**

**Edgar Truman** (*Lancet*, 1895, i., p. 403) has experimented with a chloroform-and-ether mixture with the view of ascertaining how its constituents behave during evaporation. He points out that ether boils at 95° F. (35° C.); chloroform at 145° F. (62·7 C.). Hence, out of a mixture such as the A.C.E. it is unlikely that the ether would evaporate in the proportion in which it exists in that mixture. Gases and vapours further diffuse with a velocity inversely as the square root of their densities. The density of ether vapour is 37, that of chloroform 59·75, and their square roots respectively 6·082 and 7·729, so that ether, compared with chloroform, diffuses as 100 is to 78·8. Again, ether has a specific gravity of ·72, and chloroform that of 1·497, and so two volumes of ether will have about the same weight as one of chloroform. Equal weights were slowly distilled, and the distillates examined. The result showed that a patient inhaling such a mixture would at first take in 100 volumes of ether to 0·953 of chloroform, while at the end of the inhalation he would take 100 volumes of ether to 75 volumes of chloroform. Truman further analysed

residues from a Clover's inhaler, and his conclusions showed that the resulting vapour must be of varying and uncertain composition. He argues, therefore, that such mixtures are dangerous, as to use them is to work with unknown and unascertainable strengths of chloroform.

**Ether.**—Some important papers dealing with this subject have appeared during the year. Da Costa's observations ("Blood Alterations of Ether Anæsthesia," *Medical News*, March, 1895) upon the changes occurring in the blood after ether deserve careful consideration. He divides the stages of ether narcosis into—

- I. Excitement.
- II.—Anodyne.
- III.—Anæsthesia.
- IV.—Paralytic.
- V.—Toxic.

He regards anæsthesia as partly due to destruction of red blood-corpuscles and the lessened quantity of oxyhæmoglobin. (Oxyhæmoglobin in chlorosis and Winckel's disease being deficient, produces drowsiness. This deficiency also obtains after the inhalation of ether, and hence the two blood conditions would appear to produce like results. How this destruction takes place is uncertain—possibly through cooling, as cold causes the colouring matter to be liberated and to wash out. 'There is, he says, a lowering of the body temperature under anæsthetics of 2° to 3°.' This is not due to shock, as it rose as soon as the inhalation had ceased. The destruction of the colouring matter sometimes shows itself by the onset of jaundice immediately after ether inhalation. In twenty-seven cases the fall of hæmoglobin is marked and unmistakable. Da Costa thus formulates his conclusions.—

1. Ether produces a marked diminution in the hæmoglobin of the blood.

- 2 The red corpuscles and the hæmoglobin are especially affected in blood previously diseased: *e.g.* in anæmia.

3. The irregularity of the reports is due to faulty observations and to the presence of altered hæmoglobin in the blood; to error of experiment, or to taking blood before full anæsthesia was present.

- 4 The white corpuscles show irregular changes which are not characteristic, and exhibit variations not more pronounced than would be found in the same number of samples of normal blood on different examinations.

5. Age does not appear to influence results.

6. *Ether pneumonia* may possibly be due, in some instances

at least, to the action of intense cold upon the lungs, produced by the action of ether vapour.

7. Œdema of the lungs may arise from contraction of the pulmonary capillaries, thus producing a *vis a tergo* and damming up of the blood in the veins. Furthermore, the same condition may produce sudden paralysis of the heart.

8. The statement that hæmorrhage lessens the hæmoglobin and shock needs further investigation.

9. The chilling of the blood stream may be responsible for the nephritis that occasionally follows etherisation.

10. Prolonged anæsthesia profoundly deteriorates the blood and strongly militates against recovery ; hence rapidity of operation is most desirable.

Poncet ("De la trachéotomie d'urgence dans les accidents graves de l'anesthésie générale," *Lyon Médical*, Jan. 13, 1895, June 16, 1895, pp. 35, 49, and 226) made an important communication to the Société de Médecine de Lyon upon the value of tracheotomy in cases of urgent danger under anæsthetics. In the first case the operation was performed one hour and a quarter after the pulse was imperceptible and the respiration had apparently ceased. Poncet operated for anal fissure upon an emotional woman, aged thirty-one. No untoward symptom arose until, the operation completed, the woman had been conveyed back into the ward. She was inadvertently placed in bed with pillows behind her and her head raised. She then went into a swoon. As artificial respiration and other means failed to restore her, the trachea was opened, as it was thought mucus might have collected in the air-passages and be impeding the due entrance of air into the lungs. Artificial respiration was maintained during this procedure. In the second case, the patient, aged fourteen, became cyanosed and stertorous whilst under ether after the completion of the operation. As the ordinary means adopted to resuscitate her failed, and as asphyxia was imminent, tracheotomy was done, and the patient recovered. It appeared that in this case also the obstruction was due to the collection of mucus in the upper air-passage. A similar case was reported by Howse (*Brit. Med. Jour.*, 1871, vol. ii., p. 642). For restoration of the apparently dead from failure of respiration under anæsthetics Poncet relies upon (1) artificial respiration, (2) rhythmic traction upon the tongue (Laborde's method), and then (3) tracheotomy. The operation should be deferred only until it is certain that the ordinary methods of inflating the lungs have proved of no avail. Poncet explains the mechanism of death in these cases as follows :—Under normal conditions the air has

to enter and leave the lungs with sufficient force to counteract the resistance to expansion of the lungs and the obstruction which exists in the lower and upper air-passages. Under chloral or anæsthetics, the muscular efforts are lessened, while inspiration is always fairly vigorous owing to the powerful mechanism called into play during its performance; but expiration, being mainly due to elastic recoil, fails under chloroform or other anæsthetics when even trifling obstruction occurs. This Poncet has established experimentally. Such obstruction may arise in surgical procedure, from tight closure of the jaws, falling back of the tongue, spasms of the glottis, collection of mucus in the back of the throat, in the larynx, or even in the trachea. The deeper also the narcosis is, the greater is the danger. Tracheotomy may not only give freer air-way for hampered respiration, but may, Poncet thinks, by admitting cold air to the highly sensitive mucous membrane of the trachea, initiate reflex stimulation of the respiratory and cardiac centres in the medulla. **Rochet** (*Société Nationale de Médecine de Lyon*, Dec. 17, 1894) reported a similar case to those given by Poncet, in which he performed tracheotomy on a woman, aged seventy, who was moribund under ether. **Nauwerck** has conducted in the Königsberg Institute of Pathological Anatomy an important research dealing with ether narcosis and pneumonia. We can only give his conclusions here. He regards **Brun's** (*Berliner klin. Wochenschr.*, 1894, No. 51) theory of toxic ether pneumonia and **Löwit's** (*Ziegler's Beiträge f. Anat.*, Bd. 14) conclusions from his experiments as untenable, and suggests that while many of the cases of so-called ether pneumonia are simple pneumonia not causally related to ether, others are, in fact, cases of auto-infection from the mouth. The buccal cavity always contains large numbers of pathogenic bacteria, the pneumococcus, staphylococcus, and streptococcus among them, and to this source the pneumonia is, **Nauwerck** thinks, attributable. It is probable, he thinks, that in weakly subjects ether sets up unhealthy catarrhal conditions in the mucous membrane which render it receptive soil for the infection.

**Carter Cole** (*Med. Rec.*, New York, October 12, 1895) has employed a mixture of oxygen and ether vapour to effect surgical anæsthesia. He thereby avoids all cyanosis, struggling and suffocation, and lessens or obviates salivation, nausea, and vomiting. The patients go over more quickly and with less resistance. The thirst so often following ether is also much decreased. The casts and albumen following the use of this mixture are about the same as when ether is exhibited by the usual methods. He thus describes



his apparatus: The cone is a simple tin box made like a coffee can; a tin tube three inches long is obliquely inserted into its top, so that half the tube is outside and half in. Two india-rubber tubes open into a bottle containing the ether, one is attached to the tube in the cone, the other to the oxygen supply. Ether can be poured into the cone through another opening in the top of the cone, which can be closed by a cork. In the cone is arranged some gauze and cotton wool for the ether to soak into, and these are kept from touching the patient's face by a wire frame in the cone. The cone is also fitted with a rubber face-piece. About 1 gallon of oxygen gas is used per minute, and about 6 ounces of ether per hour for an adult, and half this for a child. In one case a child had less than 3 ounces for over an hour's continuous etherisation, and in another a man took less than  $\frac{3}{4}$  vii ss. for an hour and a half's anæsthesia. The longest time of induction of narcosis was fifteen minutes, and the shortest a fraction under three minutes. Recovery took place in from fifteen to fifty minutes. In one case the salivation was sufficient to require sponging out the pharynx. Vomiting and nausea were absent in many cases. The stage of excitement was less marked, the colour remained good, and the temperature was in every case unaltered. **Markoe** has also employed ether and oxygen, and has also formed a favourable opinion of the mixture. **Cole** has in some cases used simply ether vapour which is conveyed to the patient with oxygen gas, thus discarding the gauze and cotton wool. In one case a feeble emaciated woman, the subject of cancer, became very cyanotic and bad when ether was given, but rapidly improved when oxygen was added. The indication for the use of **Carter Cole's** method seems to be the cases of feeble persons, especially those suffering from pulmonary obstruction. The number of cases cited is too small for any positive conclusion to be arrived at.

**Muret** (*Revue Médicale de la Suisse Romande*, July, 1895) in recounting a case of laparotomy mentioned that bronchitis supervened. Was this due, he inquires, to etherisation or to exposure, etc.? The posture of the patient, the head being placed below the level of the feet to obviate tendency to cerebral anæmia, might, he thought, produce, or tend to produce, pulmonary congestion. Even the subcutaneous injection of saline solutions practised in this case might be thought to have a similar effect. **Rapin** was inclined to believe "ether bronchitis" is always a recrudescence of pre-existing chronic bronchitis; while **Roux** thought that independently of ether's cooling action through evaporation, when it was allowed to drain down the air-passages



into the mucus and saliva, it acted locally as an irritant to the bronchial mucous membrane.

**W. D. Porter** (*Med. News*, lxx., 10) believes that much of the so-called ether bronchitis arises from the air which the patient breathes while under ether not being properly warmed. He has the temperature of the operating-room kept at from 80° to 90° F., and is most solicitous that the room in which the patient is taken after the etherisation is over shall be maintained at a sufficiently high temperature.

**Monod** (*Med. Press*, June 5, 1815) gives his experience of ether. Out of 500 cases violent excitement occurred in fifty cases only, vomiting was rare at the time of or after etherisation. **Segond** has also found less vomiting and less shock with this anæsthetic, while **Bicord's** experience coincides with theirs. He, however, has lost two patients from capillary bronchitis. In each case the patient had some bronchitis before the ether was given.

**Barensfeld** has made some observations on albuminuria in relation with ether. (*Münchener medicinische Wochenschrift*.) He examined the urine of 150 patients, both before and twenty-four hours afterwards, and found albumen only four times, and in two of these albuminuria had existed before the ether was given, and its quantity was not increased afterwards. Of the other two cases, one was that of a woman on whom abdominal section had been performed for intestinal obstruction. She was in a very depressed state, and died on the day of operation. The other case was one in which Kocher's operation for the relief of radical cure was done. The albuminuria was marked, and lasted for four days. Among Barensfeld's cases was that of a child aged three, on whom nephrectomy was done; no vomiting, albuminuria, or other bad symptom followed the ether. The effect of ether upon body temperature has been studied by **Angelesco** (*Le Progrès Médical*) in M. Chaput's clinic. He found, after examining fifty patients, that the temperature falls throughout anæsthesia, the drop being from 2° to 2°·5 during the first hour, but only some tenths of a degree in the second hour. The most obvious drop occurred between the first and second quarter of an hour, being ·7° to 1° in the first, and ·4° to 5° in the second. The drop continues ·1° to ·3° during the deep sleep succeeding anæsthesia, while upon awakening the temperature rises in the inverse order. The fall he attributes to vaso-dilatation, and finds it more marked with ether than chloroform.

**Bernard Stedman** (*Lancet*, Jan. 12, 1895) has had some success in rectal etherisation. He tried the method in twenty cases of operations about the mouth in the Sheffield Public Hospital.

The water-chamber was kept at 120° F. Little or no struggling occurred, and very slight after-effects. The period of induction of anæsthesia was prolonged, being in some instances as much as half an hour. In some cases diarrhœa occurred and lasted a few days, but there was no abdominal distension. Dudley Buxton's method was employed.

**Bromide of ethyl.**

C. G. Cumston (*Boston Med. and Surg. Journ.*, Dec., 1894) draws attention to the danger of using bromide of ethylene instead of bromethyl, as that substance is very poisonous, and a bad anæsthetic. Bromide of ethyl, B.P. 110. 3° F., has a density of 1.40, is more volatile than the ethylene bromide, and is not easily inflammable. Its fitness for use as an anæsthetic is, according to this writer, dependent upon (1) its volatility. If poured upon the hand it should evaporate quickly and leave no stain; (2) its colour. If any yellow colour appears it shows the presence of free bromide, a product which irritates the air-passages and produces cough and spasm; (3) its odour, which should be ethereal and rather sweet, and free from bromide pungency. It must be prepared, if it is to be pure, from pure ethylic alcohol, by acting upon it by sulphuric acid in the presence of bromide of potassium. It is then rectified by distilling over oil of sweet almonds. Decomposition follows if it is exposed to light, damp, or air. Its action is, we are told, direct; while chloroform chemically irritates the cerebral medullary and spinal centres before it paralyzes them, ethyl bromide does not, and hence no excitement and no laryngeal reflex follow its use. It is a vasodilator, and produces congestion of the vessels in the head. As it does not induce syncope it can be used for patients placed in the sitting posture. In regard to this statement it must be noted that other authorities do not admit Cumston's assertion, but regard bromide of ethyl as a cardiac depressant and even paralyzant. De Roaldes ("Bromide of Ethyl as an Anæsthetic in Oto-Laryngological Practice") has, after two years' experience, formed a similarly favourable opinion. He employs it extensively in aural and laryngological practice; his patients sit up, 3 to 10 grammes are poured upon an Esmarch's mask, which is closely applied to the nose and mouth, excluding all air. In from thirty seconds to two or three minutes anæsthesia is established. The conjunctivæ are insensitive, the eyes wide open, and the pupils somewhat dilated. If the anæsthesia is pushed farther, muscular contracture follows, with deviation of the eyeballs, inability to open the mouth, and irregular respiration. The effects are fugitive and vomiting is rare. The doses

recommended by Cumston are : for children, 180 to 224 grains, for adults and children over 12, 224 to 375 grains. He insists upon absolute abstention from food ; De Roaldes, however, does not think this necessary. The dose must be given all at once, and the operation, which must not last more than two or three minutes, should be commenced as soon as the inhaler is removed. The inhaler must "under no consideration be reapplied." He regards as contra-indications to its use dangerous lesions of the heart, lungs, and kidneys. Farther on is given a description of an inhaler for use with bromide of ethyl. (Page 179.)

**Leonard Corning** (*New York Med. Journ.*, Sep. 7, 1895) has made experimental researches regarding the state of mind in vertigo and vertigo as an aid to hypnosis and narcosis. He sums up :—

(1) In vertigo, however slight, consciousness is always impaired.

(2) This impairment increases in direct ratio to the intensity of the vertigo.

(3) To regard vertigo as essentially a cortical derangement of either direct or indirect origin, accords with the experimental data, and is clinically explanatory.

(4) The condition of psychical instability and sluggishness engendered by vertigo favours the occurrence of hypnosis.

(5) A person in a state of vertigo is thereby rendered unusually susceptible to the influence of nitrous oxide, ether, etc.

When patients are partly under anæsthetics, it becomes more difficult to provoke vertigo.

## NEW APPARATUS FOR ANÆSTHETISATION.

### **Rumboll-Birch gas and ether inhaler.**

The inhaler is put into use as follows :—The handle, H (Fig. 1), is turned to 0, shutting off all ether. The handle, K, is turned so that the word "air" appears in the slot, C, on the summit of the inhaler. An ounce of ether is then poured through the opening, L, into the glass receiver, A. The tube, E, is attached at M to the nitrous oxide bottle, and gas admitted into the bag, D. The face-piece, B, is then applied. The handle, K, is then turned until the word "gas" appears in the slot, C. When the patient has taken sufficient gas, the handle, H, is turned from left to right until it indicates 1, 2, 3 parts respectively of ether. The handle, K, is then turned until the word "ether" appears in the slot. This also shuts off the gas supply from the inhaler, and of course no more is allowed to escape from the gas bottle. The inhaler, although at first sight somewhat complicated, soon grows to the hand, and

fulfils its purpose well. The advantages claimed for the inhaler are its safety, as the faintest respiration is clearly indicated in its

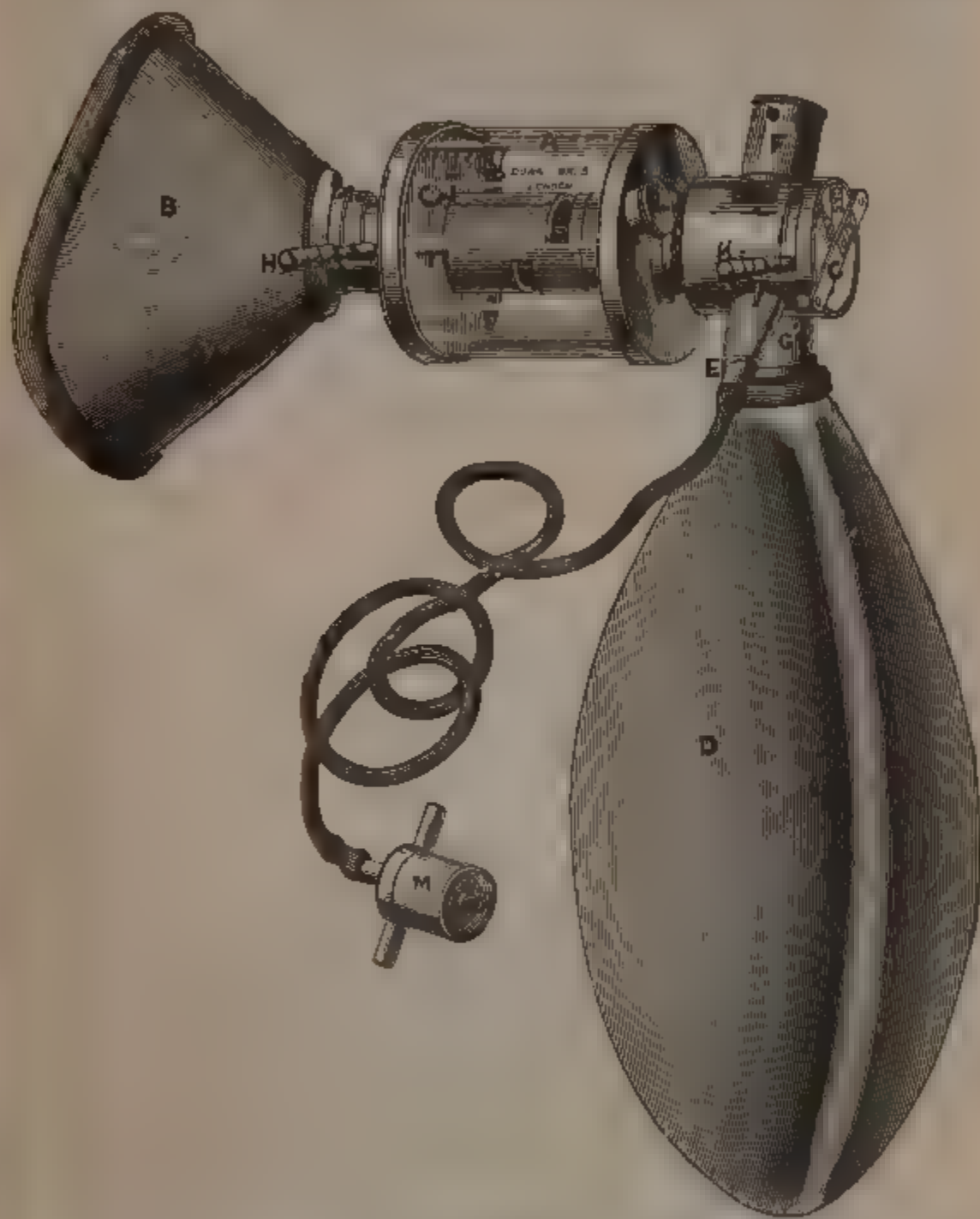


Fig. 1. Rumboff-Birch Ether Gas Inhaler.

A, glass receiver containing ether; C, face piece; D, three-way stopcock admitting either air, gas, or ether; B, Collins bag; E, tube to nitrous oxide supply; F, expiratory valve; G, an inspiratory valve is placed in the tube G', fitting D, and preventing re-breathing of the exhaled gases.

chamber, the rapidity with which anæsthesia can be induced by its use, the ease with which the ether can be seen and the

quantity taken recognised. It can be used with or without any gas connection. The makers are Messrs. Down, of London.

**Thermo-ether inhaler.** (Figs. 2, 3, 4)

Carter (*Medical Times and Hospital Gazette*, Aug. 24, 1895) claims for this inhaler: (1) it produces much less, if any, asphyxia,

with more anæsthesia; (2) it spares the patients much inconvenience and suffering, as it entails no suffocative symptoms; (3) it gives complete control over the ether supply, and the bag affords a ready index of respiratory force; (4) the ether is visible throughout the anæsthesia, and, further, cannot be contaminated by the exhalations from the lungs. It is also maintained at a uniform temperature. When the narcosis is not deep enough, the bag figured in Fig. 4 is fixed in position, and this soon suffices to deepen the anæsthesia. When to keep the bag on and when remove it is a matter of experience, and must be determined in every case. The anæsthetic bottle (A) is graduated to hold 3ij, and provided with a Buxton funnel (B) for filling. The connection for the face piece or tube for operations about the mouth is shown



Fig. 2 The Thermo-Ether Inhaler.

at N, while the connection shown at M leads to a small bellows, by compressing which air is driven through the anæsthetic. The



Fig 3.

anæsthetic bottle is surrounded by a hot-water jacket (RW), which is provided with a funnel (F) for filling and a venthole fitted with



a plug (P) for use during filling. A stick of Japanese tinder is lighted and introduced in the cylinder (H) into the tinder chamber



Fig. 4.

(R T). This chamber is provided with a venthole (v), and the rate at which air is admitted to the tinder, and therefore the rate of its combustion, is regulated by a shutter (s). The apparatus is suspended in front of the anæsthetist by a strap attached to the loops (L L), which passes over his shoulder. The anæsthetic bottle is surrounded for about three-fourths of its circumference by the hot-water jacket, the front being left open to allow the quantity of the anæsthetic to be read. If there is only one case to be anæsthetised it will be sufficient to pour about two or three ounces of water at 100° F. into the jacket, but the temperature of the water may be regulated by opening or closing the shutter (s), which admits air to the smouldering tinder. Krohne & Co are the makers.

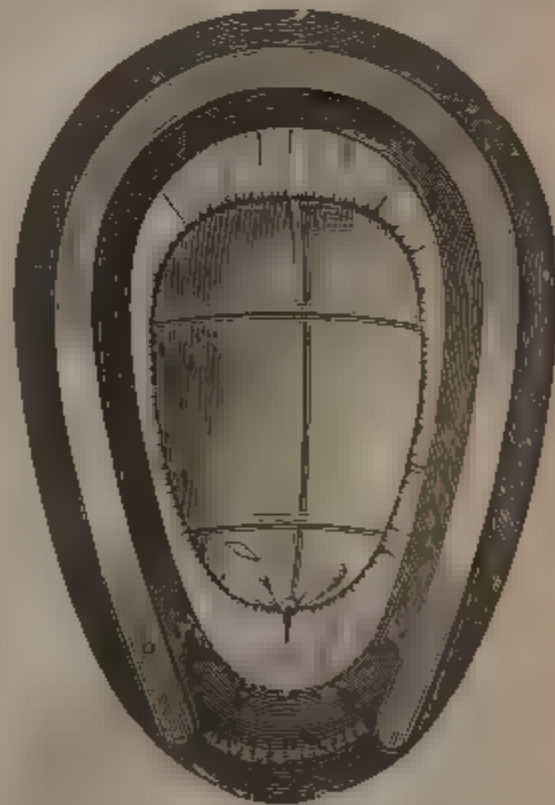


Fig. 5. Bromide of Ethyl Inhaler (seen from below).

The inhaler shown in Figs. 5 and 6 is perhaps the best form for use when bromide of ethyl is given. It consists of a metal mask,

which fits the countenance accurately, and contains a flannel cap upon which the anæsthetic is poured. A light framework



Fig. 6.—Mayer and Meltzer's Bromide of Ethyl Inhaler (side view).

maintains this *in situ*. It is supplied by Messrs. Mayer and Meltzer.

**Vajna's inhaler for chloroform, ether, or bromide of ethyl or pental.** (Figs. 7, 8, 9.)

**Chloroform** is dropped *guttatim* upon the upper surface of

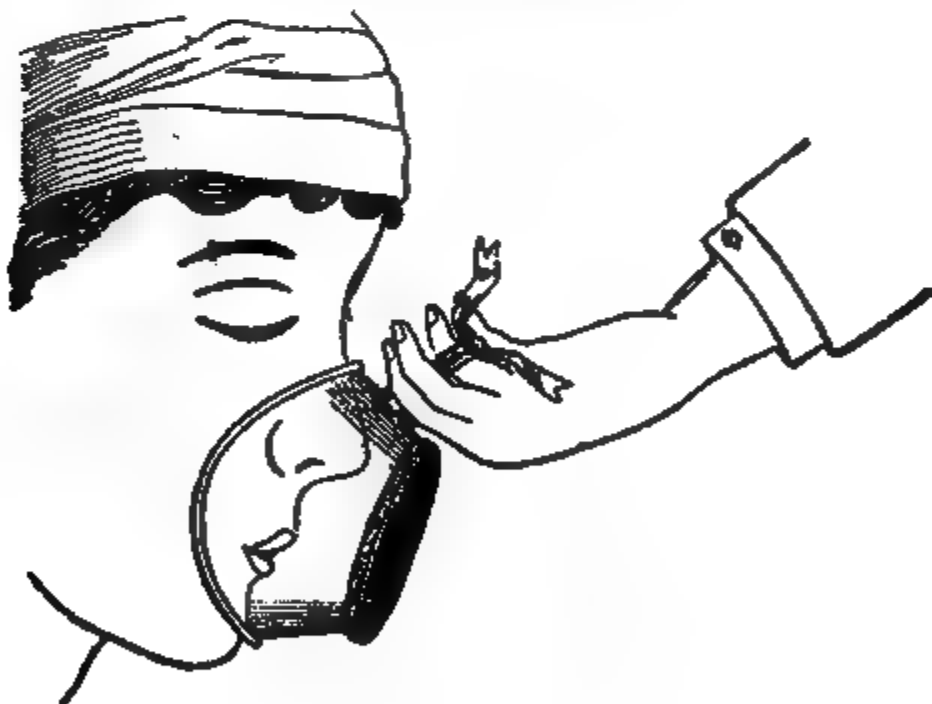


Fig. 7.—Vajna's Inhaler. Showing its Application.

the flannel, which closes the glass mask (Fig. 7). The glass is so rimmed that unless there is carelessness the chloroform does not drip on the face.

The rose seen in Fig. 9 is intended for ether or bromide of



ethyl, and allows a larger surface for evaporation than is afforded by the flannel alone.

I have used the glass mask for chloroform, and find it very

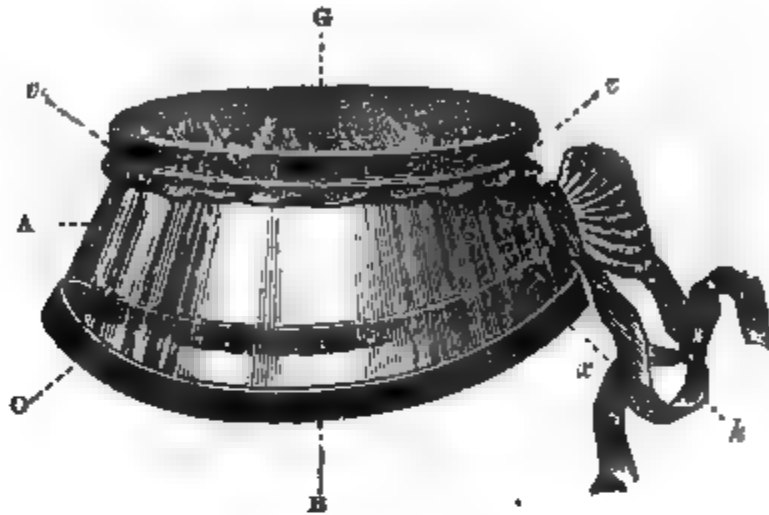


Fig. 8.—Vajna's Mask.

A, transparent glass; B, elastic ribbon; G, flannel covering forming the top part; x, to rest on the bridge of the nose; o, to rest on the mouth; v, the cord with which the flannel is tied down; z, sewing; k, ribbon tied to the mask to be held to the face.

useful, especially for operations about the neck in which the surgeon's hands are liable to touch the inhaler; as in the case of

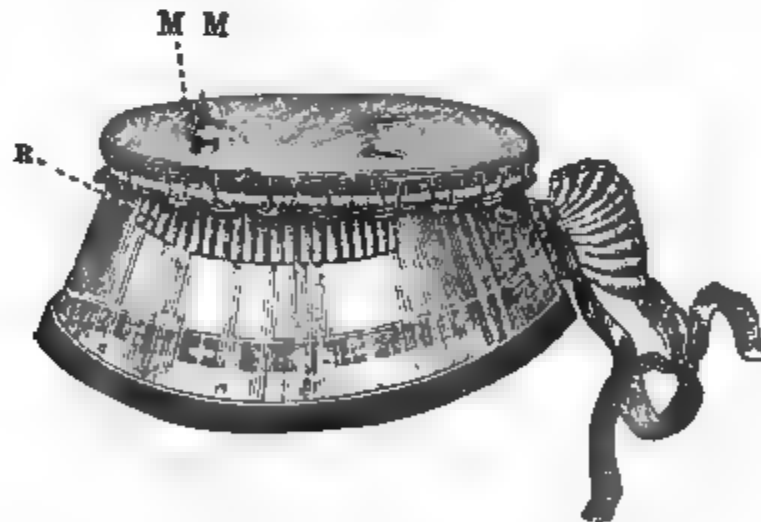


Fig. 9.—Vajna's Transparent Glass Mask with the Rose Inside for the Application of Ether or Bromethyl for Inhalation.

R, vaporating rose, 500 to 600 cm. long, muslin or flannel stuff. M M is fastened down to outer stuff with two pins.

Vajna's inhaler, the most perfect asepticity can be maintained. The inhaler is supplied by Mayer and Meltzer, and is described, but not figured, in "Year-Book of Treatment," 1895, p. 206.

# GENERAL SURGERY.

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## I.—GENERAL METHODS.

*Antisepsis and asepsis.* — Considerable discussion is still going on as to the question whether it is necessary to employ antiseptics in the treatment of wounds, or whether asepsis does not give equally good results. Schimmelbusch (*Fortschritte der Medicin*, January 1 and 15, April 1, 15, 29, 1895) contributed a series of papers dealing with the question of the possibility of disinfecting wounds which had once become infected. His well-known experiments with mice and anthrax bacilli were quoted as the ground of the opinion that when once organisms had gained access to the interior of a wound it is useless to attempt to destroy them, or prevent them developing by the action of any form of caustic or antiseptic. A further series of experiments was recorded to prove that microbes are absorbed so rapidly from the surface of fresh wounds that it is hopeless to think of neutralising their activity if once a start has been given to them. It is obvious, however, that such conclusions rest on the premisses that the human subject reacts in the same way to pyogenic organisms as mice do to the anthrax bacilli. This is evidently absurd, since the slightest infection of a mouse's subcutaneous tissues certainly results in its death within a day or two, whilst in man considerable numbers of cocci can be present without doing much harm. Henle's paper therefore (*Archiv für klin. Chirurg.*, vol. xlix., Bd. iv., S. 835) is of considerable importance in tending to counteract the false conclusions that have been drawn from the above statements of Schimmelbusch. Henle made use of guinea-pigs for his experiments, and infected them with staphylococci and streptococci obtained from cases of erysipelas and cellulitis. The virulence of these organisms was occasionally

reinforced by passing them through several animals, but in all cases it was found that the greatest difference was produced in the results obtained according to whether antiseptics were used in the wound or not. The conclusions arrived at were that if the wound after its infection was thoroughly washed with a solution of perchloride of mercury (1 in 1000), it remained reactionless, even if the most virulent form of streptococci had been employed. These results were obtained even if the wound had been left untouched for three hours; if, however, eight hours were allowed to elapse before the antiseptic was applied, erysipelas possibly developed, but it was of a mild type. Such results fully accord with what we are in the habit of seeing in hospital work, where, as at King's College Hospital, we treat all suspected wounds on antiseptic principles. A patient with a dirty lacerated wound is usually anæsthetised, and then strong carbolic lotion (1 in 20) is well rubbed in, if necessary with a nail-brush and with soap. If, however, suppuration has already taken place, the disinfection of the wound is a very different matter. **Haenel** (*Deutsche med. Wochenschrift*, 1895, No. 8) infected a number of rabbits by packing wounds reaching into the muscular substance with gauze tampons containing active pyogenic organisms. After a few hours the tampons were removed and the wounds syringed out with antiseptic or salt solutions, and repacked with moist or dry antiseptic or aseptic gauze. This was repeated day by day, and the sequel proved that not the slightest difference obtained in the course followed by the different wounds. Such facts tend to prove that, when once infection has occurred, the surgeon must depend mainly on the natural germicidal powers of the patient. **Wölfler** (*Prager med. Wochenschrift*, 1895, Nos. 20 and 21), in an inaugural dissertation on the "Conditions of Wound Healing," comes to much the same conclusions. He points out that although healing may occur by first intention, it by no means follows that the wound is sterile. In several of his cases that did perfectly well plentiful colonies of staphylococci were present in the earlier stages, although they became much fewer or disappeared entirely in the later. He considers that the patient is protected locally by the bactericidal action of the blood-serum, and that if infection has occurred it is prevented from spreading to any distance by the effect of the inflammatory reaction set up by their presence. Moreover, as time passes, the power of absorption of bacteria steadily diminishes, whilst as a great general deterrent of septic inflammation the activity and germicidal power of the blood must not be overlooked. On the other hand, **Reichel** (*Von Langenbeck's Archiv*, Bd. xlix., Hft. 4) points out that the rapid

absorption of bacteria from a fresh wound is rather a favourable circumstance in that it removes them from the situation in which they might do harm and takes them into the blood, where they are readily destroyed. Copious and repeated bleedings, too, do not promote suppuration, since they increase local rapidity of absorption. Increasing the alkalinity of the blood by suitable feeding hinders suppuration, whilst diminishing it favours the infective process. He concludes that phlegmonous processes, even if extensive, can be brought to a rapid conclusion by opening them up thoroughly and plugging with antiseptic gauze; but if severe general infection is present, nothing will be of any avail in checking the process. **Zeidler** (*Centralblatt für Chirurg.*, April 6, 1895) holds that equally good results will follow in the treatment of suppurating wounds if they are fully opened up and packed with aseptic gauze, which by its power of absorption removes all the irritating discharges and allows no pabulum for the development of the organisms.

The practical conclusion of the whole matter seems to be as follows:—Aseptic or operation wounds must be dealt with by a most thorough attention to antisepsis as applied to the external parts, such as the skin of the patient, the surgeon's hands, the instruments, sponges, ligatures, etc., whilst for the wound itself nothing but asepsis is required. In treating lacerated wounds which are likely to become septic, antiseptics must be freely applied to the wounded surfaces so as, if possible, to prevent, or at any rate hinder, the development of any germs which may be present. For septic or suppurating wounds the great essential is free drainage and complete opening of all the pouches, whilst they are subsequently packed with antiseptic or aseptic gauze.

*The complete sterilisation of catgut* is an indispensable necessity in the aseptic treatment of wounds, and although many plans have been adopted in order to ensure this desirable end, yet hitherto no very certain method has been suggested in order to accomplish it owing to the difficulty of not rendering it hard and brittle on the one hand, or of making it soft and gelatinous on the other. **Cunningham** (*New York Med. Journ.*, April 20, 1895) recommends the use of formalin for this purpose. Commercial surgical catgut is wound on a glass spool not too tightly and immersed for two days in a mixture of equal parts of alcohol and ether so as to remove all grease, then rinsed in alcohol for a few minutes, and from this removed to a small jar with a tightly-fitting cover containing equal parts of alcohol and formalin, in which it is allowed to remain for several days. The excess of formalin is then washed away in alcohol, in which the catgut is

preserved, or it may be boiled for an hour or two in normal saline solution, a proceeding which now does no harm owing to the effect of the formalin. A similar treatment may be employed for the sterilisation of bone plates, buttons, silk, etc., which do not need to be absorbed too quickly. **Répin** (*Archiv. Prov. de Chir.*, vol. iii., p. 377) advises that the catgut, after being freed from grease by ether, and from moisture by placing it in hot air, should be sterilised by keeping it for at least forty-five minutes in the vapour of alcohol at a temperature of  $120^{\circ}\text{C}$ . ; it is then wound round a glass spool and immersed in a tube in sterilised bouillon for some days so as to demonstrate its asepticity.

*Hot intravenous saline infusions.*—A discussion on this subject at the New York Surgical Society (*Annals of Surgery*, March, 1895) was introduced by **Dawbarn** *à propos* of a case in which it had been used with the greatest benefit. It was generally agreed that the .6 per cent. normal saline solution was the best to employ, and that the temperature should be at least  $120^{\circ}\text{F}$ .—i.e. as hot as the hand could bear. Dawbarn has made a number of experiments on animals and found that such a temperature was advisable, and also relates that, in one case where plain water was by accident used instead of the salt solution, the animal promptly died in convulsions, this being probably due to the fact that plain water dissolves out the hæmoglobin from the red corpuscles.

*Sulphur as an antiseptic.*—**Arbuthnot Lane** (*Trans. Med.-Chi. Soc. Lond.*, vol. lxxviii., p. 53) relates his experiences with this drug applied externally to wounds and ulcers. He was led to try it through having lost a patient from iodoform poisoning not long since, and he has found that sterilised precipitated sulphur is a potent and, if wisely used, a valuable antiseptic. It acts in all probability by being transformed into sulphurous acid, which in turn is oxidised into sulphuric acid, and this has a powerfully caustic action on the tissues with which it comes in contact, destroying them together with any micro-organisms which may be present. Lane concludes that neither the sulphur nor any of its decomposition products exercise any prejudicial influence on the life or health of the individual ; that if applied to any ordinary raw surface, twenty-four hours are quite sufficient to render that surface sterile, whilst if left longer it may do harm by causing extensive sloughing ; in parts with but little blood supply, or in granulating wounds, it may remain longer without doing harm ; finally, the action is quite painless.

*Steam as a hæmostatic.*—**Snegirjeff** of Moscow reports the successful employment of steam as a hæmostatic in several cases

where the use of other means would have been inconvenient or impracticable. He directs the steam to the required spot in a jet through a metal tube, and finds that it is best to have it superheated to 150° or 200° C. In one case he used it for the removal of an echinococcus of the spleen (*Berliner Klinik*, April, 1895). As soon as the steam came in contact with the splenic tissue, it became white and dry, and the tumour could be peeled out without danger or difficulty. Unfortunately in this case the splenic artery was wounded, but the bleeding, which was at first profuse, was at once checked by the application of steam; owing, however, to the thrombus involving the whole lumen of the vessel, removal of the viscus became essential. Other cases which have been similarly treated include five cases of resection of the knee-joint, extirpation of a cancerous breast, amputation of the cervix uteri, resection of bone and removal of sequestra, etc., all being undertaken without elastic bands, ligatures, or artery forceps. Primary union is in no way interfered with, and we seem here to have obtained an agent which will prove of the greatest value in dealing with bleeding, especially from vascular and parenchymatous organs, such as the liver or spleen.

*The influence of the weather on surgical operations.*—Abbe read a paper on this subject at the Practitioners' Society of New York (*Medical Record*, April 25, 1895), and came to the conclusion that there is no need to delay operations on account of any supposed influence exerted by the weather or by barometric conditions. Many have imagined that the summer is an unfavourable time for such work; but Abbe brought forward statistics to prove that such is not the case, and indeed that patients are less prone to certain complications owing to the amount of fresh air that can be admitted to the wards, and to the diminished risk of shock from exposure and cold. The subject of pneumonia was especially alluded to, and it was pointed out that there was no increased mortality in the patients operated on during the epidemics of the last few winters; the disease was rarely met with under these circumstances except as a result of sepsis. The same conclusions were arrived at in respect of operations on children. The majority of speakers who followed Abbe fully agreed with his opinions.

*Insomnia in surgery.*—Van Schaick (*New York Medical Journal*, March 2, 1895) discusses the various causes of insomnia in surgical practice, and classifies them as follows:—(1) Nervousness due to fear of operation. (2) Long-continued exhaustion and pain, as in suppurative and other diseases. (3) Post-operative nervous conditions, pain, etc. (4) The influence of certain

special surgical disorders, particularly affecting the genito-urinary system. (5) Pathological conditions of the nervous system, as from alcoholism. The following are the conclusions he draws as to treatment:—(a) Insomnia from whatever cause is an important complication in surgical disorders. (b) Its relief is necessary to the comfort of the patients, improves the prognosis, and materially assists recovery after operations. (c) Where pain is the chief factor, morphine is the only drug that will relieve with certainty. (d) There are many surgical disorders in which insomnia may be relieved by trional; and (e) trional is an excellent drug for the purpose, as it acts rapidly and safely, has no inhibitory action on the secretions, seems to possess a stimulating effect, is well borne by the stomach, is easily absorbed by the rectum, and does not produce unpleasant after-effects.

*Hæmatomata of the leg and emboli.*—The need of care in the treatment of severe bruises of the leg and the importance of maintaining the parts at rest until the extravasated blood has been absorbed are illustrated by two cases reported by Plique (*Presse Médicale*, May 15, 1895), in one of which severe pulmonary symptoms, evidently embolic in nature, arose several times after a carriage accident which caused severe and extensive ecchymoses of the thigh. In the other case all went well for seventeen days, and then a severe attack of dyspnoea occurred from which the patient died.

*The flap method of operating.*—Chiene (*Brit. Med. Jour.*, Oct. 6, 1894) recommends that in all cases where it is practicable surgeons should adopt the plan used by Victor Horsley in intracranial operations of turning up a flap so that the wound in the deeper parts may be at some distance from the skin incision. By this means the risk of infection of the deeper parts from impurities of the skin is reduced to a minimum, whilst more efficient support is given to the tissues, so that healing is more rapid and satisfactory. Chiene has used it in a considerable variety of cases and finds it most valuable.

*Luxation of the peronei tendons.*—Kraske (*Centr. für Chirurg.*, June 15, 1895) first comments on the rarity and supposed mode of origin of this condition, stating that only four cases have come under his notice. There is always considerable difficulty in the treatment, owing to the fact that usually the case does not come under observation for some time after the accident. If seen early, and immobilised completely and for long enough, total restoration of function without any laxity of the parts may result; but if allowed to run on without efficient support, there is every probability of the tendons slipping out of place again and



again. This is mainly due to the fact that in the accident the posterior fasciculus of the external lateral ligament is torn, and hence the chief means of keeping the tendons close to the bone is destroyed. It is obvious that under these circumstances late immobilisation or the use of apparatus is of no avail. Various plans have from time to time been suggested to remedy this defect, but Kraske favours a plan practised formerly by Lannelongue. It consists in freeing the tendons by incisions placed on either side of them, and fixing them in position by means of a periosteal flap raised from the surface of the outer malleolus, which is turned over the tendons with its outer surface inwards and stitched down to the tissues over the outer wall of the os calcis, by this means replacing the ruptured ligamentous sheath. If from any cause it is impossible to get the flap from the malleolus, it can equally easily be raised from the os calcis. In several cases an excellent functional result has followed this proceeding. **Kramer** (*Centr. für Chirurg.*, July 6, 1895) mentions several cases in which he has successfully undertaken the same operation.

*Gritti's amputation and its results.*—**Rioblanc** (*Lyon Médical*, April 21, 1895) collates the results of this proceeding in eighty-five cases which he has been able to collect. Formerly it was often condemned as being useless, complicated and difficult, dangerous from the risk of pyæmia owing to the opening up of the medullary tissue of the femur, and incapable of attaining the object desired for several reasons, prominent amongst them being that the patella was not likely to unite with the femur. As to the results in the cases he has collected, the mortality has been 18·8 per cent. ; or if only those are considered which have been performed since 1880, 14 per cent. This is certainly unduly high, but on looking over the causes one finds that most of them were in no way connected with the operation, and would in all probability have occurred whatever proceedings had been adopted. As to the functional results, in only seven out of the sixty-nine cases which survived was the patellar fragment displaced. Of these, in two cases it was easily reapplied and finally did well, the cause of the slipping being in one instance that it had never been fixed, and in the other that the ivory peg which had been used for the purpose had given rise to rarefaction around. The other five cases were due to sepsis and osteomyelitis of the femur. The contraction of the quadriceps was only to be looked on as a secondary cause, and had no direct action in the matter. One case of abscess in the bursa patellæ was noted, but it did well and led to no subsequent trouble. The stump was shapely and useful,

and no complaint was made even in those cases which were observed years afterwards. Rioblanc considers Gritti's operation much better than Carden's owing to there being no risk of the stump becoming conical subsequently through the unopposed action of the quadriceps. As to the technique, he recommends that the femur should be divided 6 or 7 cms. above the interarticular line; that the patella should be sutured to the femur, and the margins of the aponeurosis to the posterior muscles; that the thigh should be absolutely immobilised for five or six weeks so as to prevent over-action of the quadriceps; and, of course, that the strictest antisepsis should be observed.

*Implantation cysts, or traumatic dermoids.*—Several cases of this condition have been recorded during the past year, including two by Le Fort (*Revue de Chirurg.*, Dec., 1895), and four by Thelwall Thomas (*Liverpool Medico-Chir. Journ.*, July, 1895). They occur as small rounded swellings most frequently placed either on the palmar surface of the hands, or in the anterior chamber of the eye. They are usually painless, and consist of an outer layer of epithelial tissue containing serous fluid in the eye, and in the hand sebaceous *débris*. There can be little doubt that they are due to the intrusion of small fragments of epithelium, which grow in the subcutaneous tissues and produce a cyst. Cicatrices are frequently found over the site of the tumours. Of thirty cases collected by Thomas, fourteen followed definite traumatism, but in the others traumatism was not mentioned or remembered. The important fact as regards treatment is that the whole of the lining membrane must be completely removed. Bland Sutton also records and figures a similar case (*Brit. Med. Jour.*, March 2, 1895).

### **Affections of bones and joints.**

*Massage and mobilisation in the treatment of fractures.*—Considerable attention is at the present time being devoted to the question as to whether the old plan of prolonged immobilisation of fractures is always advantageous, and a new school of thought is being constituted which recommends that fractures in the neighbourhood of joints should be dealt with by the application of early massage, and that without immobilisation, unless such is absolutely required in order to correct some deformity. Lucas-Championnière (*Journ. de Méd. et Chir. pratiques*, Sept. 25, 1894, and in a special monograph on the subject published by Rueff and Co.) gives full details of the plan that he advocates. He looks on fracture of the anatomical neck of the humerus rather in the light of a bad sprain than as a fracture, and advises that massage should be commenced at once after twenty-four hours have elapsed, and

that passive movements should be undertaken gently but firmly at the same time. Other conditions where such treatment may be useful are fractures of the elbow, and also at the wrist and ankle. **Busch** (*Centr. für Chir.*, May 11, 1895) recommends that the same proceeding should be adopted for fractures of the patella, the further action being taken of rubbing the two fragments well together, so as to stimulate new bone formation. He has treated thirteen cases in this way during the last three years, and has obtained firm fibrous union which, in his opinion, is as good as bone, and not more liable to give way subsequently. Massage is commenced the same day as the accident, including not only the joint, but also the muscles above and below it. A back splint is then applied, as also an ice-bag, and if there is much pain a flannel bandage is placed round the knee. As a rule, patients are allowed to walk about on the second day with the assistance of a stick, but with no splint, and in the course of a week to mount stairs. The massage is applied twice daily, and the treatment usually extends over four weeks. Several cases treated in this way are narrated in conclusion. **Bahr** (*ibid.*, June 8, 1895) criticises the conclusions arrived at by Busch, and shows by statistics that re-fracture through the fibrinous bond of union is by no means uncommon. Seventeen cases of this nature have been collected by Stumpf, of which six occurred immediately on attempting to walk, six within the first two months, and the remaining five at variable times between three months and four years. He also contests the utility of the much-vaunted massage in such cases. That it is not without its special dangers is shown by a case reported by **Cerne** (*La Normandie Médicale*, May 15, 1895), in which sudden death was caused by embolic obstruction of the pulmonary artery with clot detached from the deep femoral vein some few hours after massage had been applied. **C. C. Booth** (*International Med. Mag.*, Aug., 1895) discusses Colles's fracture, and recommends that, after the fracture has been reduced, firm massage should be employed once or twice daily to the joint and its surroundings, so as to assist in the absorption of the effusion, and to prevent the fingers and wrist from getting stiff. During the intervals splints should be employed, but after the tenth day these should be left on and the massage discontinued for a while, so as to allow of the consolidation of the callus.

There can be no doubt that in the past surgeons have been too much given to the unnecessarily long retention of the fracture in splints, and although some of its advocates have possibly been a little injudicious in using massage at a very early date, yet in fractures involving joints no good can result from too prolonged

immobilisation. Probably the wisest course to adopt is midway between the two procedures. The limb may be kept at rest, if necessary, on a splint until the greater part of the swelling has disappeared, and then massage and passive movement should be instituted. We have most successfully treated at least one case of fracture of the anatomical neck of the humerus in this way within the last year. No splint was applied, the arm being merely supported in a sling, and massage and movement were commenced within a week of the accident. Fractures involving the elbow and wrist-joint should be treated along exactly the same lines.

*The treatment of fractured patella* has been a good deal discussed during the past year. We have just alluded to the suggestion of Busch that no attempt should be made to fix either the limb or the fragments, and that early massage and movement are desirable. Such treatment, however, is not likely to commend itself to the majority of practitioners, except in those cases where the fracture is the result of direct violence and no separation of the fragments has been brought about. Carless (*Practitioner*, June, 1895) contributes a comparative study of the methods adopted by a selection of London surgeons, and these may be grouped under three headings—(a) Where apposition is maintained by mechanical means alone, without operation; (b) where some subcutaneous method is employed, such as an antero-posterior or circumferential suture; and (c) the open plan of suturing the fragments. The conclusions he arrives at are that, although a good result may be expected in the majority of cases treated by the first plan, if sufficient time and skill are at the disposal of the patient, yet in cases where time is an important element, as in those of so many working men, a more rapid and radical method is desirable. No operation for this condition can be considered absolutely free from risk, and therefore in careful hands it is desirable to give the patient the maximum of benefit for the risk incurred, and that can only follow the open plan of treatment. An important discussion on the subject was held at Philadelphia (*Journ. of the American Med. Assoc.*, June 8, 1895), which was opened by J. William White, who showed three cases treated by Barker's method in which apparently bony union had occurred, and the functions of the joint had been fully re-established. Ashhurst, Jr., thought that most cases could be dealt with by simple retentive apparatus, but that in others Mayo Robson's plan of inserting acupuncture needles above and below the fragments through the soft tissues and drawing them together by elastic ligatures was the best to employ. The general opinion was rather against open interference and in favour of subcutaneous methods.

At a meeting of the New York Surgical Society (*Annals of Surgery*, May and June, 1895) Lilienthal showed a case where there had been but little separation of the fragments, which he had treated by massage with the best of results ; it was, however, pointed out subsequently that the fracture was possibly due to direct violence. Stimson thinks that operation should be undertaken, but that the minimum of interference is advisable. He has dealt with thirty-six cases by exposing the joint through a longitudinal incision, so that the blood within it might be evacuated and the fibro-periosteal fringe between the fragments removed. He then brings the fragments into apposition, and secures them by passing a silk ligature through the ligamentum patellæ below and through the quadriceps above in loop fashion, so that when the suture is tied it lies in front of the bone. He has also used a vertical suture of the fragments passed through the joint as in Barker's method. Abbe thought that the risk involved in opening the joint was so great that patients ought not to be submitted to it. Fowler had seen so few good results follow non-interference that he thought operation was always desirable where any amount of separation was present. His plan of procedure is as follows :—The limb is kept at rest for fourteen or twenty-one days, so as to allow the effects of the injury to wear off and increase thereby the natural means of resistance against infection. The interval is also utilised in ensuring asepsis of the overlying skin. An incision is made either skirting the lower border of the bone, or in a vertical direction. All the intervening tissue is removed between the fractured surfaces, which are brought into apposition by means of fixation hooks, one of which passes beneath the lower border of the patella, whilst the other, through the rectus tendon (if necessary, also through the skin), controls the upper fragment. The two hooks are then drawn together and secured, and the wound closed around the lower hook. The wound is immobilised in plaster-of-Paris, the hooks being usually retained for three weeks. The advantages claimed for this procedure are that there is less disturbance of the parts, and that no foreign material is left in the bone. Personally, we cannot see any special benefit from this plan of procedure, which necessitates the wound being open at a period when with wire suturing the patient would, as a rule, be walking about.

Hackenbüch (*Beiträge zur klin. Chirur.*, Bd. xii., Heft 2) gives Trendelenburg's results during the last twelve years with open wiring of the fracture. The operation is usually undertaken about the second week after the accident ; iron wire is employed, and latterly no drainage has been used. Massage and movements

are commenced on the ninth day, and the patient allowed to walk about on crutches on the fourteenth. In twenty-five cases firm bony union was obtained; in ten the joint was nearly or entirely as strong as on the other side; in one case ankylosis occurred as the result of suppuration. He concludes that wiring the patella is justifiable under the following circumstances:—(1) In all cases of transverse fracture where the separation exceeds 1 cm.; (2) in complicated fractures; (3) in cases of re-fracture and in old fractures where the separation is not too great and where the extensor muscle is not too atrophied.

*The ambulant treatment of fractures of the lower extremity* has attracted considerable attention, and a large amount of material has been written on the subject (e.g. Editorial in *Annals of Surgery*, Feb., 1895; Krause in *Deutsche med. Wochenschrift*, 1895, No. 12; Korsch in *Berliner klin. Woch.*, 1895, No. 9; Von Bardeleben and Albers, *Archiv f. klin. Chir.*, 1894, vol. xlviii.; etc.). The method consists in fixing the limb securely in plaster-of-Paris applied over a woollen bandage and with strengthening metal bands incorporated in the apparatus. This is applied as soon after the fracture as possible, and the patient is allowed to get about on crutches almost immediately. The great advantage consists in the patient being confined to bed for so short a time; but of course the greatest watchfulness is needed to discover at once whether the apparatus is becoming loose, or else the fragments may move one on the other, and defective or vicious union ensue unless it be reapplied without delay. The results given by Korsch and others are most encouraging.

*Treatment of osteomyelitis.*—In order to obviate the length of time always needed for the filling up of the large defect left by the removal of an extensive sequestrum, Curtillet (*Gazette des Hôpitaux*, April 4, 1895), after describing various plans that were formerly adopted, and pointing out that most of them failed owing to the difficulty of rendering the sequestral cavity free from microbes, describes a plan primarily recommended by Bier, and relates two cases which he had treated in this way with the greatest success. It is called *Nécrotomie osteoplastique*, and is specially useful in dealing with the tibia. A long incision is made along the inner aspect of the tibia from one epiphysis to the other, and at each end is crossed by a short transverse one. These cuts include the periosteum, and the outer shell of the bone is then divided with a chisel along these lines, so that it, together with the soft overlying structures, can be turned back in one flap, thus exposing the medullary cavity. All dead bone, granulation tissue, and other inflammatory material



is then removed, and the osseo-cutaneous flaps are readjusted in position, room being made for the insertion of drain-tubes above and below. The longitudinal skin incision is closed, and, as a rule, the wound may be expected to heal rapidly. In the cases reported the fever and constitutional symptoms disappeared almost immediately, and the wounds healed completely except along the line of the drain tubes, a short sinus persisting for some little time, but eventually closing without difficulty. There seems to be no doubt that cases of acute infective osteomyelitis should be dealt with in a radical manner as early as possible, and that this is best accomplished by opening up the medullary canal and scraping away all diseased tissues. The plan described above seems to be admirably suited to effect this purpose with precision and safety.

*The conservative treatment of endosteal sarcoma*, which was alluded to in the last edition of the "Year-Book" (p. 221), has received a good illustration in a case reported by Heurtaux (*Bull. et Mém. de la Soc. de Chir.*, 1895, No. 2), in which the upper half of the left humerus was resected eleven years ago for a large and rapidly growing sarcoma, which was undoubtedly of a malignant nature. The patient was then six years old, and in 1894, when last seen, there was no sign of recurrence. The limb was, of course, much shortened and wasted, the upper arm being only 8 inches long, whereas the other was 13 inches. The upper portion simply consisted of fleshy tissues, whilst the lower segment of the humerus, measuring 4 inches in length, was much atrophied. The forearm and hand were, however, fairly well developed and very useful.

*Early operative treatment of sacro-iliac disease.* **Golding-Bird** (*Trans. Clin. Soc. London*, April 26, 1895) emphasised the need of early interference in these cases instead of leaving them, as so often happens, until disorganisation of the joint is evidenced by the formation of abscesses and sinuses. An early diagnosis is to be established by a careful examination, and especially by the existence of pain on pressure over the posterior inferior iliac spine, and by compressing the wings of the iliac bones together. The operation consists of exposing freely the articulation by removing the posterior angle of the crest of the ilium and the bone below it. This is best accomplished by a longitudinal incision down to the bone from which the periosteum is stripped back, and then the bone is cut away with chisel or bone pliers, or even a trephine may with advantage be used. The diseased tissue is next scraped away, the wound thoroughly disinfected by *chloride of zinc* or, better, pure carbolic acid, and then stuffed



with gauze impregnated with iodoform. As a rule repair takes place rapidly. We also have had several cases illustrating the value of this proceeding.

*Irreducible dislocation of shoulder; arthrotomy; cure.* — Reboul, of Marseilles, reported to the Société de Chirurgie (*Presse Médicale*, March 16, 1895) a case of irreducible sub-coracoid dislocation of the shoulder, which came for treatment fifty-five days after the accident. He endeavoured to reduce it under an anæsthetic, but, failing to accomplish this, he opened through the deltoid and found that the head was fixed partly by the hitching of its neck against the border of the glenoid cavity, partly by the contraction of the posterior part of the ligament. By freeing it from some new attachments, the head was readily restored to its original position, and it was found possible to close the capsule and replace the tendon of the biceps. The functional result was most satisfactory. Berger, in commenting on this case, emphasised the need of early operative interference in such conditions. Where a dislocation is irreducible, it should be dealt with by arthrotomy before the surrounding tissues have accommodated themselves and become contracted permanently. By this means reposition is often possible in cases which, if left longer, would require excision.

## II.—CRANIAL SURGERY.

*Method of trephining.*—For some time back surgeons have been endeavouring to find some safe and feasible plan of dealing with the calvaria so as to avoid the risks which the patient always runs if the trephine aperture is left without artificial protection. The difficulties of using the portion of bone removed have always seemed considerable owing to the likelihood of necrosis supervening, and to the possibility of irritation of the dura mater produced by its presence. J. M. Cotterill (*Edinburgh Med. Journ.*, Jan., 1895) describes a plan, which he has practised with success, of raising a flap of bone with the soft tissues, which can be subsequently replaced and allowed to consolidate *in situ*. It is really only a modification of a method which was first suggested by Ollier thirty years ago, but was apparently first used by Wagner in 1889. It has since then been employed pretty freely, but no care has hitherto been taken to ensure the accurate division of the neck of the osseous flap. Cotterill's suggestions are as follows:—(1) Select as the base of the flap a part of the scalp carrying some of the larger vessels; (2) make two V-shaped incisions corresponding to the base of the  $\Omega$ -shaped

flap, their angles looking towards each other ; (3) strip back the periosteum from the bone to the size of a sixpenny-piece at each angle, and apply a half-inch trephine to each, removing the small discs of bone ; (4) pass a periosteal detacher between the two openings between the pericranium and skull, and divide the outer table with a key-hole saw along this line ; (5) complete the  $\Omega$ -shaped incision through the soft tissues, detach the pericranium sufficiently to allow of the application of a circular saw. The division of the bone can be hastened by putting on the half-inch trephine at the two upper corners of the incision ; (6) the flap of bone can now be readily prised up, and it will be found that the inner table will yield accurately and readily along the line where the outer table has been already sawn across. Cotterill relates several cases in which this plan has been used successfully. After the operation the flap is replaced and stitched down into position once more, where there is, as a rule, little difficulty in getting it to unite. **Wagner** (*Berliner klin. Wochensch.*, 1895, No. 7) describes two cases of meningeal hæmorrhage, in which he adopted a similar plan, and with the most gratifying results.

*The closure of old-standing defects of the cranium* has also been attempted tolerably frequently of recent years. Two chief methods are employed, known respectively as autoplasty and heteroplasty. In *autoplasty*, a flap of the outer table, together with the superjacent skin and soft tissues, is raised from the neighbourhood of the defect, and is left attached by a flap so placed that the bone plate can be brought over the defect. The site of the lesion is then prepared ; if it is covered by healthy skin, a pedunculated flap is cut in such a way that it can be transferred to the place from which the bone-plate has been taken. The margins of the opening are then thoroughly pared, and the transplantation takes place, the flap with the bone-plate covering in the defect, whilst the skin flap makes good the loss of substance caused by raising it. A very good case of such a proceeding is given by **Howard Carter** (*Medical Record*, March 30, 1895), together with a diagram which will render the above description more intelligible. If, however, the skin over the defect is destroyed or replaced by cicatricial tissue, it should be cut right away, and the defect in the integument caused by the shifting of the osseo-cutaneous flap made good by granulation and subsequent skin-grafting. An example of such an operation was given in the last "Year-Book" (p. 225). By *heteroplasty* is meant the closure of the defect by the implantation of some foreign substance beneath the periosteum and tissues of the scalp. **Willy Meyer** (*Annals of Surgery*, March, 1895, p. 316)

relates a case in which he had operated for the relief of recurrent traumatic epilepsy where already a small circle of bone had been taken away. A large portion of the calvaria was removed with the *rongeur*, and the exposed brain protruded so much that the dura could not be closed over it. A thin plate of celluloid was placed over the brain under the periosteum, and this, as well as the scalp tissues, was sutured in position, provision being made for drainage. Perfect recovery ensued, the brain substance, the pulsations of which could at first be distinctly felt through the plate, gradually shrinking back. A similar case had previously been treated in the same way by Meyer, and with equal success, although no drainage had been employed. Gerster had used a gold plate in the same manner, but not with equal success; whilst another surgeon recommends the use of aluminium.

*Craniectomy for microcephalic idiocy.*—Comparatively little has been added during the last twelve months to the study of this subject, the opinion being generally held that, although in a certain number of cases it may be of some value, yet in the majority of cases it is merely to be looked on as a justifiable experiment. C. Beck (*Prager med. Wochensch.*, 1894, Nos. 39-45) gives a summary of the literature, and points out that the cranial defect is, as a rule, only one of the phenomena, imperfect development of the brain itself being perhaps the most important causative element. Under these conditions it is scarcely to be expected that an operation which deals rather with the result than with the cause can have much influence for good. He refers to seventy-two cases in which craniectomy has been recorded with a mortality of 17 per cent; only sixteen cases showed lasting improvement. If the proceeding is not to fall into complete discredit, much more care must be adopted in the selection of the cases. Wallis Ord and Cotterill related a case to the Medical Society of London (*Brit. Med. Journ.*, March 2, 1895) in which considerable improvement had followed; but here the osseous lesion was apparently primary, and the condition was not a very grave one. Importance was laid on the necessity of not doing too much at a time, so that fatal shock should not be experienced. Telford-Smith at the recent meeting of the British Medical Association referred to the after-history of two cases, and agreed with the commonly received idea that the chief improvement is due more to the careful after-training, which is always subsequently instituted, than to the operation itself.

*Removal of subcortical cerebral tumour; recovery.*—Beever and Ballance related a case and showed the patient in good health

meeting of the Medical Society of London (Nov. 26, 1894). Full details are given in *Brit. Med. Journ.*, Jan. 5, 1895. The classical symptoms of a cerebral tumour were present, viz. headache, vomiting and optic neuritis, together with loss of sensation and motion on the right side, whilst the mental condition gradually deteriorated. The situation beneath the cortex was anticipated owing to the absence of spasms or fits, the absence of tenderness of the cranium, and the presence of partial anæsthesia. *Operation.*—A large U-shaped flap was turned down together with the periosteum; the exposed bone was divided into squares with a saw, and these were removed one by one, until nearly the whole parietal bone had been taken away. The skin flap was then replaced, and the patient put to bed, the cerebral portion of the operation being deferred for a week. The dura mater was then opened, and a soft sarcoma found beneath the cortex in the expected area. It was more or less continuous with the surrounding brain tissue, and to remove it a hole in the brain  $2\frac{1}{4}$  inches in diameter was made. Though much collapsed, the patient did well, and after a time several of the movements of the right arm and leg were recovered, as also some of the sensation. In conclusion, the authors comment on the value of such interference, and express the opinion that when once a cerebral growth is diagnosed, too much time should not be lost in watching the case; a course of antisyphilitic treatment for six or eight weeks is permissible, but if there is then no improvement, operation must be undertaken at once.

*Intracranial resection of the Trigemini, and removal of the Gasserian ganglion.*—A considerable number of these operations has been recorded during the past year, and with somewhat variable results. Thus Richardson and Watton (*Boston Med. and Surg. Journ.*, Nov. 1, 1894) report a successful case performed by the Hartley-Krause method; D'Antona relates two cases in which Rose's operation was performed by him with good results, although in the second case there was so much bleeding after the application of the trephine, that the wound had to be plugged and the resection of the nerve left for some forty-eight hours. Eskridge and Rogers (*Amer. Journ. of the Med. Sciences*, July, 1895) record another case dealt with successfully by Rose's method, in which however only a partial destruction of the ganglion was possible owing to the bleeding. Gerster reports a fatal case of the Krause method (*Medical Record*, June 29, 1895), where probably sepsis was present. Tiffany (*Annals of Surgery*, May, 1895, p. 510) relates three further cases, making seven in all, in which he has undertaken an intracranial resection of the branches of the trigemini together with partial removal of the ganglion in one case and all

of them successful. **Lanphear** (*Amer. Journ. of the Med. Sciences*, April 6, 1895) also reports two or three new cases, and argues strongly in favour of Rose's operation, on the ground that there is too much compression of the brain in Hartley's, and too great risk of hæmorrhage.

Apart from these isolated cases the best papers on the subject are those by Dandridge and Krause. **Dandridge** (*Boston Med. and Surg. Journ.*, April 25, 1895), after relating a case treated by Rose's method, proceeds to discuss the two operations and to contrast them. He admits that the view obtained of the ganglion in Rose's plan leaves much to be desired, and that its removal is a somewhat haphazard affair, but thinks that the special dangers which one might expect theoretically to meet with, viz. bleeding from the carotid or cavernous sinus, do not seem to have really occurred. That the ganglion can be entirely removed by this plan, however, is evident from a case shown by Doyen at the seventh Congress of French Surgeons (Paris, 1893), in which he presented the specimen removed, consisting of nearly the entire ganglion. That the Hartley operation gives a better view of the ganglion cannot be questioned, and hence there is a greater likelihood of its complete removal. In both plans the bleeding is a prominent feature, but in Rose's it is simply embarrassing, and can at any moment be stayed by pressure, whilst it chiefly occurs before the skull is opened; in Hartley's operation it is just as abundant, but happens chiefly after the skull has been opened, and in one or two cases has necessitated the plugging of the wound, whilst König has had a fatality from bleeding from the meningeal artery (*Semaine Médicale*, May 3, 1895). As to functional results little can at present be stated, since sufficient time has not elapsed to make certain as to whether any difference occurs in the length of the immunity from pain. There is a little more interference with the movements of the jaw in Rose's operation, but the scar is scarcely so obvious in Hartley's. **Dandridge** states the relative mortality as follows:—Rose's operation, twenty-three cases with four deaths, one of which was delayed for a month. Hartley's operation, twenty-six cases with five deaths. **Krause** in a paper presented to the twenty-fourth German Surgical Congress (*Centralbl. für Chirurg.*, 1895, Appendix to No. 27, p. 51) gives somewhat different statistics:—For Rose's plan, twenty-two cases with four deaths; and by including the intracranial neurectomies without the removal of the ganglion, fifty-one of his own operation with only five deaths. If we exclude the simpler neurectomies, however, there is but little to choose in the mortality between the two plans. **Krause** points out the

objections to Rose's method as indicated above, and also adds to the list the possibility of septic infection through the Eustachian tube, which is considerably exposed to injury; several of the fatal results have arisen in this way. As to his own operation, the chief dangers are hæmorrhage and compression of the brain, and Krause thinks that neither of these is of great importance. Tiffany suggests that the latter may be minimised by opening the dura mater so as to allow exit to some of the cerebro-spinal fluid; Krause does not consider this necessary, as if the dura remains intact the pressure is more evenly diffused over the brain. No permanent harm is done, even when the left side is operated on, only a temporary impairment of speech having been noticed.

### III.—SURGERY OF THE SPINE.

*Spina bifida; treatment by plastic operation.*—**Mayo Robson** (*Annals of Surgery*, July, 1895) believes that too much stress has been laid on museum specimens, and that the majority of cases which come under observation are of the meningocele type, and amenable to treatment by operation. Clinically he divides all cases into three classes: (1) Those where an operation is unnecessary, as when the sac is small and well covered; (2) those where an operation is not advisable, as when the fissure in the spinal canal is very extensive, or when there is associated well-marked paraplegia or hydrocephalus; and (3) those where operation is advisable, as (*a*) in meningocele; if the opening is large, meningeal flaps are formed and turned in, and covered by cutaneous flaps derived by undercutting in the neighbourhood; where the opening is small, the pedicle is simply ligatured, and the skin incision closed over it by separate sutures; (*b*) where the integuments are thin and translucent, parts are removed, and the remainder, rendered thoroughly aseptic, may be employed in forming the meningeal flaps; (*c*) where the cord or nerves are manifestly blended with the sac, it may still be incised, and all redundant tissue removed, whilst any evidently nervous tissue is carefully dissected out and left in the spinal canal. Twenty cases thus treated are recorded, and it is satisfactory to note that only four deaths resulted as the immediate effect of the proceedings.

**Henry O. Marcy** discusses the same subject in an earlier number of the same journal (*ibid.*, March, 1895). He considers that the essential features of such an operation should be the same as in dealing with a hernia, viz. isolation and removal of the sac (after ascertaining its contents), and the reinforcement of the surrounding structures in such a way as to prevent, if possible, the return of the condition. Elliptical incisions are made on either side, and

the sac isolated without opening it ; the head is then lowered, and the contained fluid slowly drawn off with a trochar and cannula ; the sac is then freely opened, and any nervous tissue contained within it, or on its walls, carefully separated and placed in the spinal canal. The mouth of the sac is closed by careful suturing along its base, the redundant portion cut away, and another row of stitches inserted to bury completely the edges of the serous membrane. The superjacent muscles are then drawn together, and the external wound is closed. Attempts to implant bony and periosteal flaps have not been very satisfactory. A successful case is then related, and a tolerably complete bibliography, together with a summary of most of the cases already reported added. **Ramsay**, of Bournemouth (*Brit. Med. Journ.*, June 1, 1895), records a successful case in which he excised the sac, after first puncturing it, evacuating its contents, and thus proving that the aperture of communication with the spinal canal was only a small one. The usual elliptical incision was made, no nervous tissue was seen, and the sac was excised and ligatured. Not a single bad symptom followed. **J. H. Morgan** (*Brit. Med. Journ.*, July 27, 1895) has had a very similar case, in which after tapping the fluid re-accumulated ; the sac was subsequently removed and sutured, and the wound closed, firm pressure being applied by means of salicylic wool and a bandage. For a day or two the temperature ran up to 104° or 105°, but the wound healed well ; a catheter was needed for a few days.

**Broca** (*Revue d'Orthopédie*, 1895, No. 1) relates his experiences in twelve cases, in ten of which he interfered. Three died from infection of the wound, whilst of the others only one was alive and well a year afterwards. He concludes that thinning and threatening rupture of the skin are the only indications which warrant surgical interference.

*Spinal puncture in meningitis.*—**Fürbringer** reported to the Berlin Medical Society (*Semaine Médicale*, March 20, 1895) that he had employed this procedure in eighty-six cases. The operation according to Quincke's method presents no difficulty, and requires no anæsthetic. The patient is seated on a chair, leaning forwards, and the needle of a Pravaz syringe, or an aspirator needle, is inserted into the canal, either between the second and third, or the third and fourth lumbar vertebræ in an upward direction. Since the cord ends at the lower border of the first lumbar vertebra, no harm to it need be expected, and the elements of the cauda equina usually escape. The fluid should be withdrawn slowly, and not allowed to squirt out. The amount removed has varied from a few drops to 110 c.cm. In most cases



of tubercular meningitis in which it has been used, the tubercle bacillus has been found, whilst the fluid is always richer in albumen in those cases of simple inflammation where tubercle is absent. Its value is very doubtful, and any benefit is usually very ephemeral, although in one case of chronic serous meningitis a cure followed. As a means of diagnosis it may prove of some use.

*New route for reaching the bodies of the vertebræ in lumbar caries.*—**Fontan**, of Toulon (*Revue de Chir.*, 1894, No. 11), suggests a shorter and easier route to the bodies of the lumbar vertebræ than that recommended by Treves, and one less dangerous as regards hæmorrhage. The incision lies one centimetre from the middle line; the erector muscle is then split longitudinally and drawn aside until the articular processes are reached. One next feels for and clears the transverse process, chisels its base through and excises it, and then follows the vertebral column forwards with the raspator, keeping close to the **Ménard** (*Revue d'Orthopédie*, March, 1895) relates three cases in which this plan had been followed by him, and with the most satisfactory results, the paraplegia for which the operation was performed at once commencing to improve.

*Wound of the femoral artery by trochar used for evacuation of pus from a psoas abscess.*—**Schmidt**, of Dresden (*Arch. für klin. Chir.*, 1895, xlix., No. 3), relates this case to illustrate one of the dangers connected with the treatment of chronic tubercular abscesses by puncturing them with a trochar and cannula, and injecting a mixture containing iodoform, as is now so commonly the custom. A child, aged ten years, was being treated for a psoas abscess connected with a carious spine. The cavity was punctured above and below Poupart's ligament, and dealt with as usual. When the lower cannula was withdrawn, a bluish tumour soon made its appearance, and red blood flowed freely from the wound. An incision was quickly made, so as to lay bare the artery, and it was found that the common femoral had been punctured just above the origin of the profunda. Both these trunks were secured by ligature, and no harm followed, the circulation in the foot being restored on the following day. This case emphasises the importance of thoroughly examining the upper part of the thigh, so as to ascertain the position of the vessels in cases of psoas abscess before puncturing them. This had been done in the patient referred to, but the pulsation could not be detected.

*Tumours of the spinal cord.*—An excellent summary of this

subject is given by **Allen Starr** (*American Journ. of the Medical Sciences*, June, 1895). He has been able to collect 123 cases in medical literature, in one hundred of which the history was so clear that a diagnosis should have been reached during life. In seventy-five the tumour could have been removed, although this was only undertaken in twenty-two cases. Eleven died ; and of the others, complete recovery followed in only six. Had the diagnosis been made earlier, better results might have been anticipated, although the nature of many of the growths is such as to preclude total recovery. After discussing the symptoms and diagnosis, he makes the following suggestions as to the character of the operation :—1. The incision should always be extensive, because it is sure to be deep. 2. Time should be saved by stopping the bleeding by pressure with gauze tampons, instead of attempting to pick up individual vessels. 3. The spinous processes should be cut away with pliers, and then the laminae removed with the *rongeur* or chisel. The surface is too irregular to allow of the use of the trephine. 4. The dura should not be opened until the whole extent which it is proposed to lay bare has been exposed, and the surrounding fat scraped away. All bleeding should be stopped before opening the dura, and this should be done slowly, so as not to allow a sudden rush of cerebro-spinal fluid. The cord must necessarily be dealt with most carefully and gently. **Kummell** (*Centr. für Chir.*, 1895, No. 27 ; Appendix, p. 62) related a case to the German Surgical Congress in which he had removed a growth from the spinal canal in the region of the second and third dorsal vertebræ, which was probably sarcomatous, and possibly secondary to a sacral sarcoma which had been previously operated on. Although the paraplegia had in this case been very complete, yet at the time of the report the patient was able to walk about with a stick, and had regained to a great extent his former powers.

*Intradural resection of the roots of the brachial plexus.*—**Abbe** reported to the New York Surgical Society (*Annals of Surgery*, Jan., 1895) a case in which he had performed with success this operation for recurring athetoid movements of the head and neck. The arm had previously been removed for a similar condition, and every resource of physicians and electricians exhausted. The cord was exposed from the fifth cervical to the first dorsal arch, the dura mater opened, and the roots of the nerves on the affected side of the body divided, both the anterior and posterior branches being dealt with, with the exception of the anterior division of the fifth. The pain had been immensely, though not entirely, relieved by this means, and the spasms had almost completely

ceased. Very similar results had followed two other cases in which he had performed the same operation.

#### IV.—AFFECTIONS OF THE ŒSOPHAGUS.

*Retrograde dilatation of cicatricial stricture of the œsophagus.*—**Woolsey** (*Annals of Surgery*, March, 1895) refers to twenty previously recorded cases of this proceeding, and adds eight more, one of which was treated by himself. In almost all of these the final results were good, and no death occurred. Considerable differences are noted in the actual methods adopted, but they consist generally in making a temporary opening into the stomach, and through this passing the finger or bougies into the œsophagus, so as to dilate the stricture. If this cannot be satisfactorily accomplished at one sitting, the stomach wall is stitched to the abdominal parietes, so as to allow of further subsequent manipulations. The methods of passing the first guide or dilator are numerous and ingenious. In some cases it has not been difficult to insert a fine bougie, and to this to attach a silk thread to act as a guide in the later proceedings. In others the patient has been given a shot to swallow, attached to which is a silk thread, and, simply by its weight, the shot has managed to find its way into the stomach. When once a guide has been passed, dilatation is accomplished either from below or from above, Abbe's plan of using the silk guide as a saw being apparently of considerable advantage. The œsophagus is put on the stretch as much as possible with a bougie, and then the thread is drawn up and down, so as to divide the tense fibres of the cicatrix. An interesting observation of **Von Hacker's** is also noted, that in several cases where gastrostomy had been performed, and the œsophagus given complete rest for some weeks, the stricture was found to have relaxed sufficiently to allow of the passage of a bougie. Dilatation from above was then accomplished, and the opening in the stomach subsequently closed.

**Winslow** (*Annals of Surgery*, May, 1895, p. 543) relates two cases of cicatricial stricture of the œsophagus, in which life was undoubtedly saved by gastrostomy. Frank's operation was employed with the most satisfactory results. In both, further treatment directed to the stricture was demanded. In the first, both upper and lower ends of the tube were stenosed; the cardiac portion was readily dilated from the fistula after an external œsophagotomy had been undertaken, and Abbe's string saw used. The upper constriction (above the œsophagotomy

wound) was much more resistant, but finally a passage was forced by means of steel bougies, and the continuity of the tube re-established. There is no doubt that a final complete recovery would have been reached, but the patient's strength gave out, and he died of asthenia, probably from the repeated operations. In the second case there was only one stricture, and soon after the gastrostomy a small bougie was passed, the stricture divided by Abbe's method, and finally the œsophagus was dilated so satisfactorily that the gastric fistula could be safely closed, and food taken quite naturally.

*Removal of œsophageal pouch.*—**Mixter**, of Boston (*Medical News*, June 15, 1895), describes the case of a woman, aged fifty, who had always had some difficulty in swallowing, which had become more marked during the last four years. On attempting the passage of œsophageal bougies, it was found that they were usually arrested about  $8\frac{1}{2}$  inches from the incisor teeth by some obstruction, and that such attempts were usually followed by regurgitation of food. If, however, the bougie was made to hug the right wall of the œsophagus, no difficulty was experienced in passing it on into the stomach. After a period devoted to the ineffectual passage of bougies and the wearing of a tube, operation was undertaken. An incision was made on the left side of the neck in the usual way for exposing the œsophagus, and the pouch easily found on inserting a bougie. It was opened, and enough of the wall excised to allow the defect in the œsophagus to be made good. A perfect recovery followed, deglutition becoming absolutely normal. **König** (*Berliner klin. Wochens.*, Oct. 15, 1894) relates two very similar cases successfully treated in the same way.

*Œsophagectomy for simple stricture.*—**Kendal Franks** (*Brit. Med. Journ.*, Nov. 3, 1895) relates a case in which excision of a stricture of the œsophagus was undertaken with good results. The patient had suffered from dysphagia for three years, and on examination of the throat, a wart-like growth was found on the aryteno-epiglottic fold of the left side, suggesting the existence of a malignant stricture lower down. Operation with a view to the formation of an artificial opening below the growth was undertaken, but on opening the œsophagus it was found that the stenosis was of a simple nature, and hence it was excised. Fortunately, the muscular tissue appeared uninvolved, and the excision was limited to the mucous membrane and the submucous tissue. A little traction enabled the loss of substance to be made good, and the whole of the wound in the mucous membrane was closed by sutures. A little pus formed in the wound, but no

permanent fistula resulted, and the power of deglutition was soon regained.

## V.—AFFECTIONS OF THE THYROID AND MAMMARY GLANDS.

*Exophthalmic goitre.*—A considerable amount of attention has recently been directed to this subject in the effort to find some clue to its pathogenesis and treatment. We cannot enter into the former question here, beyond stating that there is a general concurrence of opinion in favour of the view which regards the disease as due to the excessive absorption of a supposed substance named thyroidin, by means of which the waste products of the metabolic activities in the body, or thyroproteid, are supposed to be transformed in the gland into an innocuous compound which is readily removed. If the waste products collect in the organism owing to absence or atrophy of the thyroid gland, myxœdema results; if there is an excess of thyroidin, Graves's disease follows (see Revilliod: *Revue méd. de la Suisse Romande*, August 20, 1895; and report of a discussion at the French Neurological Congress, *Presse Méd.*, August 7, 1895). As to treatment, several suggestions have been made. Thus Mikulicz has treated ten cases of ordinary goitre, and one of the exophthalmic variety, with thymus extract; the latter case was immensely improved, as also the majority of the simple goitres. David Owen (*Brit. Med. Journ.*, Feb. 16, 1895) reports a similar case of exophthalmic goitre, treated with thymus instead of thyroid gland, owing to the mistake of the butcher; it answered admirably. Another suggestion is that phosphate of soda should be administered in large doses, and Revilliod (*op. cit.*) is able to report several cases treated in this way with excellent results. Phosphaturia is a well marked symptom in some cases, and it is possible that its excessive elimination may have some deleterious effect, which is counteracted by administering the phosphate in medicinal doses. The plan was originally proposed by von Trachevsky, one of Kocher's co-workers in this field of investigation, and was warmly commended by Kocher at the German Surgical Congress (*Centralb. f. Chir.*, 1895, No. 27; Appendix, p. 67). As to operative treatment, Mikulicz (*ibid.*, p. 68) reports that he has operated on eleven patients for this condition; in two he simply tied the thyroid arteries, in three he enucleated the growth, and in five he resected one or both sides of the gland. All recovered from the operation; six were totally cured, four much improved, and one slightly. The conclusions he draws from his experience

are as follows:—(1) That any operation which leads to the diminution in size of the thyroid body may be expected to have a favourable influence on the course of Graves's disease; and (2) that the complete effect of the operation is often not experienced at first, but may take some time to show itself. As to the choice of an operation, Mikulicz is inclined to favour ligature of the thyroid arteries for diffuse enlargement of the gland, and enucleation by Socin's method for circumscribed growths and cysts; he thinks that resection in these cases is a little too dangerous, and although he has had no fatal result, yet in the experience of other surgeons this has happened not infrequently. This opinion may be taken as representing tolerably accurately the general trend of feeling on the part of surgeons as to the advisability of dealing actively with these cases.

*Treatment of carcinoma of the breast.*—Keen (*Cleveland Med. Gazette*, Dec., 1894), in an admirable address on this subject, points out that the statistics of recent years go to show that we may hold out a much more favourable prognosis than formerly. Thus, Gross in 1880 claimed that in only 11·83 per cent of cases was a cure established by operation; not long ago Curtis found that 20·7 per cent. lived for three years or over, whilst last year Bull claimed out of 108 cases to have obtained 30 per cent. of cures. Even if the operation is not successful in totally extirpating the disease, life is prolonged twelve or sixteen months more than without it, and possibly, by a suitable repetition of operations, even recurrences can be stamped out. Again, the probability is that after the first interference the patient will suffer rather from internal than external growths, and thus will gain considerably in comfort. Keen thinks that if a woman escapes recurrence for three years, you can practically say to her that she is safe. He criticises the statement of Roger Williams (*Brit. Med. Journ.*, June 16, 1894), that in the London hospitals the death-rate from the operation amounts to 9·4 per cent., contrasting with these figures those giving the experience of four or five American surgeons who dealt with 464 cases with but four deaths, *i.e.* with a death-rate of 0·86 per cent. As to the operation itself, he considers that a preliminary incision should always be made into the tumour so as to verify the diagnosis. All the diseased skin must be removed, as also the whole of the pectoral fascia, and one need not be very particular about the pectoral muscle itself. The axilla should always be thoroughly cleared, only the vessels and nerves being left. The finger should then be inserted between the pectorales major and minor, and the space of

Mohrenheim, *i.e.* the space between the pectoralis minor and the clavicle, explored; in it will often be found an enlarged gland or two.

## VI.—SURGERY OF THE THORAX.

*Stab-wound of the pericardium: suture, recovery.*—H. C. Dalton, of St. Louis (*Annals of Surgery*, Feb. 1895), relates the case of a man, aged twenty-two, who was stabbed in the breast during a fight, and complained subsequently of faintness and nausea, soon followed by dulness on the left side and dyspnoea. The wound was freely opened, and a considerable portion of the fourth rib excised; a divided intercostal artery was secured, and then a wound in the pericardium 2 inches in length became evident. The pleural cavity was opened, and after sponging out some blood clots, was subsequently irrigated with hot sterilised water; with some difficulty the wound in the pericardium was sutured with a continuous stitch, and the whole wound closed and dressed antiseptically without drainage. Perfect convalescence ensued. Dalton emphasises the difference between abdominal and thoracic wounds, in that all punctured wounds of the abdomen must be at once attended to by exploration, whilst in the thorax one would never explore without the supervention of grave symptoms.

*Paracentesis pericardii.*—Percy Kidd related to the Medical Society of London a case in which this procedure had been undertaken (*Brit. Med. Journ.*, Feb. 2, 1895). The patient was a man, aged thirty-four, suffering from chronic Bright's disease with asthma of uræmic origin. The pleura was first tapped, and then effusion in the pericardium became marked. It was tapped twice—the first time through the fourth space, and five ounces of fluid were removed; the second time, through the fifth interspace on the left side, and twenty-eight ounces drawn off. Considerable, though temporary, improvement followed, and the patient died six weeks afterwards. In the discussion which ensued several speakers emphasised the fact that the little operation was not entirely devoid of risk, as it was sometimes difficult to make certain that the heart was not adherent to the parietes, and under such circumstances it might be wounded, or harm might result from one of the cardiac veins being punctured. That this is not an imaginary evil is evident from the report of such a case which appeared in the *Edinburgh Medical and Surgical Journal* (Feb., 1895, p. 673) under the care of A. T. Sloan. The patient was



a young woman suffering from rheumatic endocarditis and pericarditis; the heart's action became at length so impeded that it ceased beating, and the respiration also stopped. Aspiration was at that very moment being discussed by the medical attendants assembled, and as the instrument was ready to hand, Sloan in a moment of excitement thrust the needle through the thoracic wall into the chest through the fourth space half an inch to the left of the sternum. To his dismay six or eight ounces of pure blood were evacuated, and then to his delight the heart's action recommenced and continued, and from that moment convalescence took place. One or two similar cases of cardiac puncture are mentioned by Sloan in his paper, although in none of them were the results so brilliant. **Gordon Sharp** (*Brit. Med. Journ.*, March 30, 1895) relates a case in which he tapped the pericardium with an aspirator between the third and fourth ribs, and removed a little over two ounces of a clear serous fluid, but in spite of the small amount evacuated the patient was immensely relieved. Dr. West, commenting on this case in the next number of the journal, agrees that this proceeding is very seldom called for in rheumatic cases, but that the effect of removing even a small quantity of fluid may be very great. He, however, considers that an aspirator is a dangerous instrument to employ for the purpose, and recommends a simple hollow needle.

*Purulent pericarditis: incision: recovery.*—**Von Eiselberg**, of Utrecht (*Wien. klin. Wochenschrift*, No. 2, 1895), had to deal with a case of this nature resulting from a stab with a knife. The pericardium was thrice tapped with a trochar, and each time a considerable quantity of purulent fluid was evacuated. As the symptoms of dyspnoea, cyanosis, œdema, frequent and weak action of the heart, and diminution in the amount of urinary excretion continued, it was determined to lay the pericardium freely open and drain it. This was done after resection of the fourth costal cartilage, and about two litres of pus were removed. The pericardium was stitched to the edges of the wound, and a drain-tube inserted; the suppuration soon diminished, possibly as the result of the glycerine and iodoform which was injected from time to time. Complete recovery followed. Curiously, the examined pus was found to contain the bacillus coli communis.

*Thoracoplasty.*—**Keen** (*Medical Times and Register*, Aug. 11, 1895) relates a case in which he performed a very extensive operation for the closure of an old empyema by Schede's method. The patient, a man aged thirty years, had an attack of pneumonia twelve years previously, which had been followed by an empyema,

and for this he had continuously for eleven years worn a drain-tube in the left side, passing through the sixth interspace just external to the nipple. At the first operation two inches of both the seventh and eighth ribs were resected, but they were so welded together, and the pleura beneath them was so thick, that it was impracticable to do more on that occasion, especially as the respiration had to be carried on by only one lung, and became somewhat embarrassed. On a second occasion a more extensive proceeding was possible. A longitudinal incision was made from the clavicle downwards to the former opening, and horizontal cuts at each end of this, so that the greater part of the anterior chest wall was exposed when the flap was dissected up. The portion of the thoracic parietes thus bared was cut away, including the pleura, which was at least an inch thick. The inner wall of the cavity consisted of enormously thickened pleura and pericardium, stretched like a vertical diaphragm across the thorax. This was carefully curetted, and the flap of skin and muscles laid directly upon it. The patient recovered perfectly, and, although a slight further operation was called for later, the empyema was finally cured. Keen remarks that in such a case Estlander's operation would have been quite useless on account of the immensely thickened pleura; total removal of the entire substance of the thoracic wall was the only proceeding which held out any prospects of cure.

*Traumatic hernia through the diaphragm: operation: cure.* Llobet (*Revue de Chir.*, March, 1895) relates a case of old diaphragmatic hernia, the result of a penetrating wound through the eighth intercostal space some years previously, in which he was enabled to bring about a cure by means of an open operation. A large flap, involving the skin, muscles, and portions of the seventh, eighth, and ninth ribs, was formed and turned upwards, and the interior of the left pleural cavity thus exposed. The hernial protrusion was found to consist of a considerable amount of omentum and part of the transverse colon. The bowel was replaced, the omentum and hernial sac cut away, and the opening in the diaphragm closed by sutures which involved both serous and muscular coats. The external flap was then replaced and secured in position by wiring the ninth rib, suturing the muscles, and stitching up the margins of the incision in the skin. Finally, the pleural cavity was exhausted of its air, so as to allow of the re-expansion of the lung, which had collapsed completely during the operation. The patient was completely well at the end of three weeks.

*Innominate aneurysm.* Coppinger (*Brit. Med. Journ.*, Aug. 24,

1895) records the case of a soldier suffering from a large and thin-walled aneurysm of the innominate artery, which had displaced the clavicle forwards, and had defied the usual medical treatment. The right subclavian and carotid arteries were tied simultaneously, and three weeks afterwards both wounds were healed, and the aneurysm, though not consolidated, was smaller, whilst the pulsation was less marked and the walls were distinctly thicker from the deposit thereon of fibrin. This is the third case treated in this way in Dublin; the two former, under the care of Coppinger and Conway Dwyer respectively, were entirely successful.

*Aortic aneurysm treated by needling.*—**Bignone** (*Riforma Med.*, March 1, 1895) treated a man, aged sixty-eight, with an aneurysm of the ascending portion of the aorta, by this method. The patient suffered from a good deal of pain behind the sternum, together with an irritable cough and considerable dyspnoea and dysphagia, whilst a pulsating tumour could be felt on the right side of the sternum in the third interspace, and over it a soft systolic bruit was discernible. Two steel needles were inserted into the sac four or five times, and allowed to remain twenty-four hours. On the occasion of the last puncture the needle seemed to pass through a firm fibroid tumour before reaching the sac. The symptoms of pain and discomfort had by this time disappeared, and the man was able to walk about with ease.

## VII.—ABDOMINAL SURGERY.

*The technique of abdominal operations* has received attention from **Greig Smith** in two masterly papers (*Brit. Med. Journ.*, Jan. 5, 1895, and *Annals of Surgery*, April, 1895) in which some of the ordinary rules of treatment are commented on. In the former, the question of suturing peritoneum to peritoneum is discussed, and the author concludes that the adhesions formed between a serous membrane and a raw surface are much stronger than those between two opposed layers of peritoneum; several very good illustrations of this fact are alluded to. "The primary lymph coagulum between serous and fibrous surfaces forms just as quickly as between two serous membranes, but, having more points of attachment amongst the opened fibres, it holds more strongly. As it taps open connective tissue and is surrounded by plasma cells, vascularisation begins at once, and goes on apace. At the end of two days sero-fibrous adhesions are stronger than sero-serous; at the end of a week sero-serous adhesions can still be peeled off with little bleeding; sero-fibrous can then scarcely

be separated at all, and their separation causes free bleeding." The practical outcome of these principles is very far-reaching, applying to every department of abdominal surgery. Thus, the old plan of always stitching the peritoneum to the skin in colotomy, gastrostomy, etc., must be given up, and one will rather strip back the parietal peritoneum a little more, so as to increase the raw surface to be brought in contact with the visceral peritoneum; the same holds good in cholecystotomy.

In the second paper Greig Smith deals especially with the question of the parietal incision. Whilst admitting that all other considerations must give way to the necessity for obtaining easy and satisfactory access to the site of operation, he maintains that sufficient attention has not been directed to certain principles which would minimise the likelihood of a subsequent ventral hernia. (1) The line of incision should be parallel with the direction of the most important muscular fibres, because, however carefully one may suture, transverse division always occasions a weak cicatrix. (2) Separate, where possible, and do not divide aponeurotic fibres; where division is necessary, let it be in a direction which will permit of the leaving intact one or other of the muscular layers behind the division, or in front of it, or parallel to it. (3) Keep away from the bony margins, and avoid the thickest and least inobile parts of the parietes, since the incision can often be made somewhat shorter if it is mobile over the site of work. (4) Let the incision be as short as is consistent with efficiency. A long incision with separation of muscular and aponeurotic fibres is better than a short one with division of fibres. The application of these principles to the incisions of various abdominal operations is then carefully considered. Amongst other points it is noted that an incision along the linea semilunaris, as for abdominal nephrectomy, is always liable to lead to the occurrence of a hernia from the action of the flat muscles dragging on the cicatrix, and that this can usually be prevented by placing the wound a little further inwards and separating the fibres of the rectus muscle. As to the closure of the wound, separate suturing of each parietal layer is looked on as always a refinement, and usually a superfluity, except in the upper part of the abdomen, where the parietes are thin, and muscular fibres have been divided. Again, the sutures should be left in for two or three weeks, and to that end must be non-absorbent, and preferably of silkworm gut. Of course, if the separate layers have been individually secured, the cutaneous stitch may be removed, as usual, on the seventh day.

*Surgical emphysema of abdominal wall following laparotomy*

*in the Trendelenburg position.*—The adoption of this position with the pelvis well elevated, so as to assist the surgeon in operations on the bladder or other pelvic viscera, by allowing the intestines to gravitate backwards towards the diaphragm, offers such advantages, and is consequently so often employed, that any inconvenience arising from it should be carefully noted and reported. **Caspersohn**, of Altona (*Cent. für Chir.*, July 27, 1895), points out that free admission of atmospheric air into the pelvic cavity necessarily results, and that the surgeon should endeavour before closing the wound to express as much of this as possible. He relates a case in which, after a laparotomy in this position for the removal of the uterine appendages, severe pain and discomfort with some respiratory embarrassment arose, and lasted some days, owing to emphysema of the subcutaneous areolar tissue of the abdominal wall. This remained in spite of firm bandaging, and in fact, to give final relief, he found it necessary to make two lateral incisions, one on each side of the middle line, and through these to press out as much of the air as possible, the wounds being subsequently plugged and firmly bandaged.

*Hernia of the linea alba.*—**B. Niehues** (*Berliner Klinik*, Feb., 1895) draws attention to this subject *à propos* of thirty-eight recent cases which he has been able to collect. The most common situation for this condition is near the umbilicus, and the hernia may result either from traumatism or from a congenital imperfection. At first there is merely a protrusion of the subserous fatty tissue, perhaps hypertrophied; a process of peritoneum is soon drawn through the aperture, and then finally some of the viscera, especially the omentum and small intestine, find their way into the cavity. At all stages of the affection the symptoms are very distressing, consisting of pain and uncontrollable vomiting. The treatment suggested consists in the wearing of a well-made and closely-fitting belt in the earlier stages, and if the tumour is reducible; but operation is often called for. The protrusion is exposed and isolated; it usually consists of a well-developed fatty envelope, within which is a peritoneal sac, and perhaps some of the abdominal contents. The fatty tissue and the sac must be freely cut away, the peritoneal wound closed with sutures, the opening in the linea alba pared so as to expose, if possible, a raw bleeding surface, and then deep sutures are inserted so as completely to command the aperture. The results of this proceeding are usually most satisfactory, the painful and dyspeptic symptoms disappearing entirely.

*Ventral hernia.*—**Greig Smith** (*Annals of Surgery*, April, 1895; p. 382) states that to cure this condition it is rarely necessary to

enter the abdominal cavity. Incision along the chief diameter of the hernia down to the subperitoneal tissue ; the serous membrane is stripped from the under surface of the cicatrix over the whole of its extent ; the cicatricial tissue and redundant skin are removed, the lateral incisions being sufficiently deep to expose muscular tissue. The peritoneum is turned inwards toward the abdomen, and, if necessary, gathered together by a continuous purse-string suture through the subserous areolar tissue. The parietal incision is now closed by mass sutures, which should always take in some of the muscular tissue ; if much tension is present, the sutures should be placed very close together. They should not be removed for three or four weeks.

*Gangrenous inguinal hernia : lateral anastomosis : cure.*—**THOS. A. DAVIS** (*Journ. Amer. Med. Assoc.*, May 25, 1895) reports an interesting case in which he had to deal with gangrene of the intestine following a strangulated inguinal hernia in a man, aged thirty-six. His symptoms had lasted for a week, and on herniotomy being performed it was found that the hernial sac as well as the gut was gangrenous. The local and general conditions were such as to preclude any attempt at primary intestinal resection, whilst the formation of an artificial anus seemed equally unpromising, since during the inspection scarcely any intestinal contents appeared in the wound. The herniotomy wound was then packed with iodoform gauze, the abdominal wall thoroughly cleansed, and the abdomen opened by a lateral vertical incision. The two portions of gut passing to the site of strangulation were easily recognised, and a lateral anastomosis with a No. 3 Murphy button quickly made. Free fæcal circulation was promptly established, and an uneventful recovery occurred, except that the button passed down the proximal portion and needed extraction later. The fæcal fistula, however, persisted, and some months subsequently this was dealt with by re-opening the abdomen and making an end-to-end junction of the affected portions of gut, the fistulous portion being scraped and partially closed. The operation was completely successful, but the patient succumbed to bronchitis forty-three days later. We commend the treatment followed in the above case to the careful attention of the profession, as admirably suited to a class of cases where hitherto the surgeon has been puzzled to know what best to do, *i.e.* when primary-enterectomy seemed risky, and the establishment of an artificial anus unsatisfactory.

*Strangulated obturator hernia : successful operation.*—**W. R. DODS** (*Deut. med. Wochens.*, 1895, No. 5) reports a case



occurring in a woman, aged sixty-five, where the general symptoms of strangulation were associated with the existence of a painful tense swelling in the upper part of the thigh on the inner side of the vessels. On vaginal examination a similarly exquisitely tender swelling was found in the neighbourhood of the obturator foramen. A transverse incision was made below the horizontal ramus of the pubes, and a mass of fat exposed. This was drawn aside and the pectineus divided, thus laying bare a coil of congested intestine which was devoid of any covering, and about 2 inches in length. Repeated incisions into the obturator membrane enabled the gut to be returned. The case subsequently did perfectly well. W. H. Bennett relates a similar case (*Lancet*, May 4, 1895) in a woman, aged seventy-eight years, in which none of the classical signs of such a condition were present, and in which a medium laparotomy had to be performed, owing to the entire absence of any localising symptoms as to the cause of the obstruction. A coil of collapsed gut was followed down in the pelvis to the left obturator notch, and by a little traction a coil of gut  $2\frac{1}{2}$  inches in length was disengaged. The bowels acted on the fourth day, and the patient recovered entirely.

*The operative treatment of gastric ulcer* has received considerable attention from surgeons during the past year, and we are beginning to appreciate more clearly than formerly the indications for surgical interference. Operation may be called for under at least three conditions:—(1) For severe and frequent hæmorrhage. (2) For perforation. (3) For pyloric stenosis following cicatrisation of an ulcer in that region.

Operations for *hæmorrhage* have not been frequent; indeed, there are only two successful cases on record. Mikulicz performed one fatal operation, and the two successful cases have occurred in the practice of Küster of Marburg. The first of these (*Verhandlungen der deutschen Gesellschaft für Chir.*, 23rd Congress, 1894) was in a young woman aged eighteen, who had suffered from gastric pain, hæmorrhage, and dilatation for some time. The greatly-dilated stomach was opened, and an ulcer found near the pylorus on the posterior wall; it was adherent to the pancreas, and a cherry-stone was found lodged in its depths. The surface of the ulcer was freely cauterised, and since the opening into the duodenum was so constricted as to be unrecognisable, a gastro-jejunostomy was also performed. No bleeding recurred after the operation, and the patient was quite well two years afterwards. The second case (*Centr. für Chir.*, 1894, No. 51) was an emaciated man, aged 42, who had suffered



from very similar symptoms. The stomach was opened and an ulcer found near the pylorus about the size of a five-pfennig piece, which was cauterised, and then communication was established between the stomach and jejunum. Although the after-progress of the case was a little disturbed by sepsis of the external wound and dilatation of the stomach with bile-stained fluid, yet finally it did well.

The operative treatment of *perforation* of ulcers of the stomach formed one of the formal subjects for discussion at the 1894 meeting of the British Medical Association at Bristol. It was introduced by **Pearce Gould** (*Brit. Med. Journ.*, Oct. 20, 1894) in an admirable paper in which the need of cleansing the peritoneum fully was recognised as the central point of the proceeding. As to the *time* of operation, he considered that, if practicable, the first shock should be allowed to pass off; but that, although the general rule to "operate early" should always be attended to, yet it would be wise in most cases to delay an hour or two in order to obtain assistance and perfect preparations. The *incision* should be in the middle line, since there is no means of ascertaining the site of the ulcer prior to operation. The fluid used to wash out the peritoneal cavity should be normal saline solution (3i to the pint) at a temperature of 110° or 112°, as, if employed at this temperature, it is also a powerful restorative. The ulcer when found is stitched up with Lembert's sutures so as to turn the edges well in; there is no need to excise the edges. As to *drainage*, it is recommended to place a glass tube through a separate incision just above the pubes, and should there be any doubt as to the gastric wound, another should be inserted above in close contiguity to it. Should the hot irrigation of the abdomen not suffice to rally the patient from the condition of shock, intravenous injection of saline solution should be practised, and also a hypodermic injection of strychnine administered. As to the results of this procedure, **Jowers** (*Lancet*, March 2, 1895) has been able to collect twenty five cases treated in England with eight recoveries, a fairly satisfactory record. Since that date a few other successful operations have been related. **F. T. Paul** (*Liverpool Med.-Chir. Journ.*, July, 1895) reports one in which the ulcer was placed near the cardiac orifice; it was secured, though not very satisfactorily, with sutures, but the condition left was so unpromising, owing to the gastric dilatation, that a gastrostomy to relieve the latter condition was also performed; recovery followed, and the artificial opening into the viscus *subsequently* closed without any difficulty. Another occurred in the practice of **Michaux** (*Mercredi Médical*, Oct. 24, 1894)

where again the perforation was situated high up near the cardiac orifice ; a fold of serous membrane was drawn up over it, and the ulcer thus buried. A gauze tampon was placed over the site of the operation and left in position for eight days. **Schuchardt** at the 24th German Surgical Congress (*Centr. für Chir.*, July 6, 1895) also related two successful cases in which he had operated, although purulent peritonitis was present. He mentions fifteen cases previously recorded (presumably in German literature) with but one success. The subject was also under discussion at the Clinical Society of London (*Trans. Clin. Soc.*, May 10, 1895), and a number of cases not included in the above table were alluded to. In all, fourteen cases were brought forward by various speakers ; of which five recovered completely, and the others died, some of septic poisoning, some of abscess of the lung, and others of peritonitis. **Gilbert Barling**, in the third Ingleby lecture (*Brit. Med. Journ.*, June 15, 1895), gave an admirable summary of the whole subject. He stated that the anterior wall is much more liable to be affected than the posterior, owing to its greater mobility, whilst the cardiac end of the viscus is more frequently involved than the pyloric. The history of the case may be acute, subacute, or chronic ; in the first, acute peritonitis follows the perforation within a few hours ; in the second, the same condition occurs, but its incidence is a little delayed owing probably to the opening being small and the leakage slow ; in the third group, subphrenic abscess is the most common result. As to the prospects of recovery, Barling states that in at least 95 per cent. of the cases death must inevitably result if no operation is undertaken ; whilst of the thirty-seven cases he had been able to collect in which operative interference had taken place, there had been thirteen successes, a most gratifying record. Should it be decided in any particular instance not to operate, rectal feeding, the horizontal position, and the use of morphia to check peristalsis are the only means which hold out any prospect of benefit. General rules as to the laparotomy are added, but perhaps the most important point raised is that sponges or swabs should be used to remove the extravasated contents of the stomach, and that general irrigation of the peritoneal cavity should be adopted only where general peritonitis actually exists. As to the localised subphrenic abscess, Barling considers that merely opening the cavity anteriorly over the most prominent spot and draining it through this incision is scarcely adequate to meet the requirements of the case, since where this alone has been trusted to death has not infrequently resulted from septic pneumonia, empyema, or general septic intoxication. Hence he recommends

that a counter-opening should be made, and this is done most satisfactorily in the mid-axillary line after resection of a portion of the eighth rib. The pleural cavity is to be opened, and after the lung has collapsed the serous membrane covering the diaphragm is to be stitched to the parietal pleura, and, if possible, the wound should be stuffed with gauze for twenty-four hours to allow adhesions to take place. The diaphragm is then incised, and a drain tube inserted.

As to the third indication for operation in the case of gastric ulcers—viz., late contraction of the pylorus—but little has been added to our knowledge during the past year. Some surgeons prefer gastro-enterostomy, whilst others recommend equally forcibly pyloroplasty. A suggestion as to the technique of the latter operation made by **Mayo Robson** is referred to below. As to results, **Albers** (*Centr. fur Char.*, 1895, Appendix to No. 27, p. 86) refers to seven cases treated at the Charité Hospital at Berlin since 1888, of which five recovered and two died soon afterwards—one only, however, from the effects of the operation. In one case five years subsequently the patient was in a good state of health. **Loreta's** operation of digital dilatation of the pylorus seems to have fallen quite into disuse if the absence of records may be interpreted as an indication.

*Gastrostomy.* In the last edition of the "Year Book," p. 248, an account was given of a new method of performing this operation, recommended by **Frank Lindner** (*Berliner klin. Woch.*, 1895, No. 8) reports nine cases treated in this way. One died eight days after operation from sheer inanition, whilst two succumbed to pneumonia ten and twelve days afterwards respectively. In all, however, the operation proved eminently satisfactory, there being no overflow of food or gastric juice to hinder the healing, whilst the later accounts of the cases which survived are also most encouraging. We ourselves have dealt with one case at King's College Hospital, and have every reason to be pleased with the result, although it is evident that the second lateral incision, through which the apex of the conical portion of the gastric wall is drawn out and sutured to the skin, should be placed a little farther out than Frank originally recommended—i.e. an interval of more than an inch should intervene between the two incisions.

*Perforative ulcers of the duodenum.* **Marmaduke Sheild** (*Internat. Med. Mag.*, Jan., 1895) has met with two cases of this nature in which he performed laparotomy unsuccessfully. He points out that the initial site of pain is the epigastrium or the right hypochondriac region, and not the umbilicus; that it is more frequent in the male than in the female sex,

ten out of twelve recorded cases being in males; and, owing to the fact that the extravasated fluid is always acid in reaction, and non-feculent, he recommends that the primary incision should be of small size, so as to establish whether or not this is the case, since, if these conditions are met with, the surgeon knows without doubt that the stomach or duodenum has been perforated, and he can direct his attention at once to these viscera.

*Perforating typhoid ulcer: laparotomy: recovery.*—Abbe, of New York (*Medical Record*, Jan. 5, 1895), relates a successful case of laparotomy for this condition. The third week of the disease had been reached when symptoms of perforation made themselves evident. The abdomen was opened in the median line below the umbilicus, and a quantity of foul, purulent, and faecal material evacuated. The abdomen was irrigated with sublimate solution, followed by warm water, the perforation found and sutured, a large iodoform gauze tampon inserted in the lower part of the abdomen, and the external wound left open. An uninterrupted recovery followed, although a certain amount of faecal extravasation remained for a time. Pearce Gould (*Brit. Med. Journ.*, Oct. 20, 1894) refers to twenty cases with but four recoveries; and of these four it is doubtful whether true typhoid was present in three. It is very questionable, then, whether we can expect much benefit from operation under these conditions.

*Enteroplasty for simple stricture of the intestine.*—Mayo Robson (*Lancet*, Aug. 3, 1895) describes a modification of the usual operation of longitudinal incision, followed by transverse suture, which he has made use of in one most successful case. After incising the stricture longitudinally, the wound in the bowel is opened up, and a decalcified bone bobbin inserted. The cut edges are then brought together over it, only two stitches being needed—a continuous catgut suture to secure the mucous margins, and a continuous silk suture for the serous membrane. The wound is thus very rapidly closed, the continuity of the tube is immediately secured in such a way that the bowel becomes at once patent and effective, whilst the line of sutures is protected until the lymph has partially organised. The same process is applicable to simple strictures of the pylorus.

*Intestinal anastomosis, etc., by means of Murphy's button.*—In the last edition of the "Year-Book" a full description of this valuable contrivance was given, and also details as to the best methods of using it. Since then Murphy's button and the results gained by it have been much to the front, and our journals have been full of records of cases dealt with by its means. Naturally

we turn first of all to **Murphy's** own report (*Medical News*, Feb. 9, 1895, reprinted in the *Lancet* of April 27), in which he endeavours to gather together the cases hitherto treated in this way. The results obtained may be given as follows :—

Gastro-enterostomy for malignant disease ...	...	29 cases	...	9 deaths.
Pylorectomy ...	...	4 cases	...	1 death.
Choleduodenostomy ...	...	38 cases	...	1 death.
Cholecystenterostomy for malignant disease ...	...	8 cases	...	7 deaths.
Resection of bowel for internal obstruction ...	...	14 cases	...	1 death.
"    "    "    gangrenous hernia ...	...	12 cases	...	2 deaths.
"    "    "    fæcal fistula ...	...	9 cases	...	No death.
"    "    "    non-malignant disease ...	...	48 cases in all	...	3 deaths.
"    "    "    malignant disease ...	...	30 cases	...	7 deaths.
Lateral approximation—12 cases	{	5 for malignant disease	...	2 deaths.
		7 for benign growths	...	No death.

Since that paper was written many other cases have been recorded, with both good and bad results ; but the above figures will suffice to give some idea of the utility of the contrivance. Of course a certain margin must be allowed for the non-publication of fatal cases ; but even when this has been taken into consideration, the figures are extremely satisfactory. **Murphy** gave a demonstration on the cadaver in the use of his button at the London meeting of the British Medical Association, and emphasised one or two points of importance in the technique of its application.

As to gastro-enterostomy, trouble has arisen in several cases from the button falling back into the stomach when it has been attached to the anterior wall. Thus **Willy Meyer** (*Annals of Surgery*, Jan., 1895, p. 69) relates two cases in which this had occurred in his practice. In one excruciating pain and vomiting suddenly supervened on the seventh day, which, however, gradually ceased. This was followed subsequently by the development of phthisis, probably from hospital infection, and *post mortem* the button was found in the stomach. In the second the patient died five weeks after the operation from embolic obstruction in the lung, secondary to thrombosis of the femoral vein. In consequence of these occurrences he recommends that the operation should always be undertaken according to **Von Hacker's** plan—*i.e.* the small intestine is pulled up through the transverse meso-colon and attached to the posterior wall of the viscus within the cavity of the lesser omentum. In spite, however, of this precaution, **Van Arsdale** (*ibid.*) related a case in which the button was found in the gastric cavity *post mortem*.

The results of pylorectomy are most encouraging, since only

one patient died out of four who were operated on. The plan suggested by Murphy consists in removing the growth between suitable clamps, and then suturing up the end of the stomach which has been divided. A button is then fixed into the opening in the duodenum by means of a purse-string suture, and the other half into an incision specially made in the posterior wall of the stomach. Approximation is brought about in the usual way, and the operation, which formerly took a very long time, is quickly concluded.

As to cholecystenterostomy, the chief point which deserves attention is the immense difference in the results between simple cases and those in which malignant disease is present. In the former the mortality is 1 in 38, whilst in the latter 7 out of 8 patients died. It is evident, then, that the operation should never be undertaken, where malignant disease is present, for the relief of obstructive jaundice caused thereby. F. J. Shepherd (*Annals of Surgery*, May, 1895, p. 581) has also reported a case of death from hæmorrhage under the same circumstances, the source of the bleeding being a vessel in the thickened and friable walls of the gall-bladder, which had been ulcerated into by the pressure of the button. Dawbarn (*ibid.*, Feb., 1895) says that in simple cases there can be no difference of opinion as to its value; here it is a most brilliant device, wonderfully successful, and the greatest advance upon former plans.

The figures quoted above as to the results in *enterectomy* are eminently satisfactory, but there is still a good deal of difference of opinion as to the advisability of trusting to it and excluding other well-tested plans. In his demonstration of his method before the British Medical Association in London (of which unfortunately no full notice has yet appeared) Murphy pointed out that to ensure success considerable attention to various details in the technique was all-important. Thus he laid great stress on the direction in which the incisions in the bowel are made, since if the mesenteric attachment is too much encroached on, sloughing of the anti-mesenteric border may be expected. As a rule, the incisions in the gut should slope slightly outwards from the mesenteric attachment. Then, again, the way in which the mesenteric stitch is inserted is of the greatest moment, since if the over-stitch is not correctly placed, the peritoneum is not drawn into the grasp of the button in this situation. Moreover, it is essential to success that the whole of the mucous membrane should be inverted into the cup before making the approximation, or else leakage is sure to occur. In conclusion, Murphy points out that there is no need to restrict the patient's diet after



the operation, but that liquid food may be administered as soon as the effects of the anæsthetic have passed off. The bowels should be moved as soon as possible, and frequent loose evacuations kept up.

Several fatal cases have been recorded from the use of the button in end-to-end anastomosis, and, in spite of the general eulogiums with which it has been loaded, surgeons are beginning to doubt whether it is quite so harmless an agent as it has been represented to be, and to question whether there are not even better plans of treatment to be made use of. Thus **Abbe** relates a case in which death ensued from obstruction of the lumen of the button by a mass of solid fæces (*Annals of Surgery*, Jan., 1895, p. 72), and this in spite of the free use of saline purgatives. **Dawbarn** (*ibid.*, Feb., 1895) has collected several other cases in which the button did not act satisfactorily. In one it remained on the wrong (proximal) side of the anastomosis; in another death was due to gangrene of the wall of the intestine, owing apparently to the pressure of a large button which had been specially selected by **Murphy** himself; in still a third case (**Kammerer's**) the patient succumbed to peritonitis twelve weeks afterwards, and the button was found on the wrong side of the anastomosis, whilst the ends of the gut separated easily on slight traction, having probably allowed septic matters to transude. **W. Meyer** (*ibid.*, Jan., 1895, p. 73) points out that if too large a button is used, there is considerable danger of gangrene; whilst if too small a one is employed, obstruction may follow, especially if the colon is the site of the operation. **James Bell** (*Montreal Med. Journ.*, June, 1895) related a fatal case in which perforation followed the use of the button for excision of a malignant growth of the ileum, the gut giving way at the mesenteric attachment. The cause here was that the upper part of the bowel was thickened and dilated, whilst the lower segment was thin and contracted; it is plain that the button is not suited to such a condition. **Wiggin** (*New York Med. Journ.*, Dec. 1, 1894) reports a case in which two **Murphy** buttons were employed, the patient dying three days later from intestinal obstruction, due to acute kinking of the intestine by the larger button used. Moreover, other cases are related in which death has occurred from ulceration of the gut owing to the pressure of the holes placed at the ends of the button; whilst **Harrison Cripps** mentioned at the discussion on this subject at the British Medical Association meeting in London that he had seen two or three fatal cases occur, not from any imperfection in the anastomosis, but from ulceration of the gut caused by the presence of the button within the bowel after a successful



anastomosis had been accomplished. It is unnecessary to add more to prove that the button is not entirely innocuous, and can only be looked on as a step in the right direction in solving the vexed question as to the best means of securing intestinal anastomosis. That it is an admirable means of dealing with sundry conditions of the biliary passages and for securing lateral intestinal anastomosis cannot be doubted; but that it is the best means of uniting divided segments of bowel end to end is very questionable. For this purpose two essentials are necessary—viz. rapidity and security. The first of these is certainly obtained by the button, but somewhat at the expense of the latter; whilst in the old plans of simple suture without mechanical appliances the duration of the operation was the great objection. Many other methods are being continually advocated, and of these perhaps the best is that known as Maunsell's. Rose (*Practitioner*, Aug., 1895) relates a successful case, and discusses the subject; whilst Wiggin (*op. cit.*) and Ullmann (*Centr. für Chir.*, Jan. 12, 1895) are both favourably impressed by the procedure. Other authors recommend their own pet plans of enterorrhaphy. Thus Dawbarn (*loc. cit.*) advises the use of plates after the Senn type, cut out of turnip or some other suitable vegetable; whilst Allingham has introduced a new form of decalcified bone bobbin (*Lancet*, Aug. 31, 1895). Evidently no finality has yet been arrived at in this operation.

*Thrombosis or occlusion of the mesenteric vessels.*—Delatour (*Annals of Surgery*, January, 1895) relates a case in which thrombosis spread along the splenic vein after splenectomy so as to cause obliteration of the mesenteric vessels. The result of this was to lead to a series of symptoms almost precisely similar to those of acute obstruction, from which the patient died in twenty-four hours. The condition was probably induced by the state of the blood as the result of the enlargement of the spleen, associated with the fact that two subacute attacks of pneumonia had followed it. In the same number J. W. Elliott relates two cases of gangrene of the intestine owing to embolism or thrombosis of the mesenteric vessels. In both the symptoms were practically those of obstruction, and in one death ensued from purulent peritonitis owing to perforation, whilst in the other the case was saved by a very extensive enterectomy, 124 centimetres of bowel being removed. This is the sixth most extensive resection on record, Kocher's case of removal of 208 centimetres at present holding the record. In this patient no attempt was at first made to unite the divided ends, owing to the state of collapse; later, as the *nutrition* was commencing to fail and the abdominal wall

became irritated by the discharge, the fistula was closed by a simple plastic operation, and the patient's condition soon improved.

*Immediate suture of the gall-bladder and ducts after removal of gall-stones.*—Elliott (*Annals of Surgery*, July, 1895) points out that since the introduction of Murphy's button there has been much too great a tendency in treating an impacted calculus of the gall-passages to resort at once to cholecystenterostomy instead of endeavouring to deal directly with the cause of the obstruction. He relates five cases of his own in which he successfully removed calculi—one from the hepatic duct, one from the common duct, and three from the gall-bladder—closing the wounds thus made at once by suture. Other surgeons have performed the same operation, and he has been able to find twenty-three similar cases of immediate suture. Of the whole twenty-eight, only five died, making a mortality of less than 18 per cent.; only one of the five succumbed from leakage of bile, the others dying from shock, cirrhosis of the liver, or accidental injury to the intestines. Drainage, usually gauze, was used in all except three, and in several there was leakage of bile from the wound for a time. The chief objection to immediate suture of the ducts is the difficulty of the proceeding. Elliott recommends that the back should be bent over a sandbag so that the intestines may gravitate towards the pelvis. Before incising the duct it should be carefully grasped by the finger and thumb of an assistant so as to steady it. The authors of this abstract have performed one or two such operations within the last twelve months, and found that long-handled cleft-palate needles were exceedingly useful in inserting the necessary stitches. Elliott concludes that if the parts are healthy, immediate suture should always be undertaken; if unhealthy, or if the patient's general condition is critical, a preliminary cholecystotomy may be required; and that cholecystenterostomy should be reserved for cases of irremediable stricture of the common duct. McGraw, of Detroit (*Annals of Surgery*, August, 1895), writes in much the same strain, emphasising the need of dealing directly with the impacted calculus of the bile-ducts. A cholecystenterostomy merely relieves temporarily without curing. It leaves behind a focus of mischief, which may develop into a condition of danger. Moreover, it necessarily gives rise to a permanent adhesion between the gall-bladder and the intestine, and the author clearly points out that this may lead in its turn to more serious symptoms than the presence of the calculus itself. The intestinal end of the gall-duct becomes distended so as to constitute a new gall-bladder, and since a certain amount of chronic inflammation is always present it is quite possible that the tendency to gall-stone formation

may persist and fresh mischief be lighted up. The possibility of contraction of the newly-formed fistula must also not be forgotten. The use of a gauze drain is stated to be less satisfactory than if an indiarubber or glass tube is employed, since bile does not readily find its way along it. A point is also made as to the likelihood of the jaundice increasing for a day or two after the operation of suturing the wound in the duct, owing to the swelling of the mucous membrane, or possibly to the impaction of a blood-clot. On the other hand, **T. Pridgin Teale** (*Brit. Med. Journ.*, February 2, 1895) reports several cases where he has been able to deal efficiently with impacted biliary calculi by manipulation or the use of the needle. If the stone is not large, it may be possible to work it backwards into the gall-bladder; if it is of large size, it may be broken up with a needle inserted down the duct and the fragments either pressed on or squeezed back; whilst sometimes a number of stones welded together constitute the source of the obstruction, and the manipulation may suffice to arrange them in a line so that they may be readily passed. The advantages of such proceeding are so obvious that it is unnecessary to emphasise the statement that it should always be adopted if possible before incision of the duct is undertaken.

*Internal choledochoduodenostomy for impacted gall-stone.*—**Kocher** (*Korrespondenzblatt für schweizer Aerzte*, 1895, No. 7) relates a case in which he was dealing with a patient in whom the gall-bladder was small and contracted, and no stone was to be felt either within it or in the duct. On passing the fingers behind the duodenum, however, a stone as large as a pigeon's egg was discovered firmly lodged in the common duct, and as it was impossible to free the duodenum owing to the adhesions present, it was necessary to attack the stone from the front through the duodenum. The stone was therefore pushed forwards by the left index finger of the operator inserted behind it, whilst an assistant steadied the bowel. A transverse incision was then made across the whole thickness of the gut, exposing the posterior wall, which in its turn was incised longitudinally, including the wall of the ductus choledochus. The stone was then readily dislodged and removed, and the wall of the duct sewn to the duodenum, forming a fistula between the two. The anterior wall of the intestine was also sutured, but the abdominal incision was left open and allowed to close by granulation, a drain-tube and gauze packing being inserted. The patient made a complete and uneventful recovery.

*Drainage in gall-stone operations.*—**Rutherford Morison**, of Newcastle (*Brit. Med. Journ.*, Nov. 3, 1894, and *Annals of*

*Surgery*, August, 1895), points out that a natural pouch exists in the right hypochondrium, through which drainage for operations on the gall-passages can be conducted most efficiently without risk of the general peritoneal cavity being involved. It is bounded above by the right lobe of the liver, internally by the peritoneum lying in front of the spine, which is here very prominent, and also by the free edge of the gastro-hepatic omentum with the foramen of Winslow; externally it is limited by the parietal portion of the serous membrane, whilst below, the duodenum, covered by the ascending layer of the transverse mesocolon, forms a partial barrier to the extension of fluids downwards. This space is stated to be capable of containing a pint of fluid without overflowing, and if a drainage-tube is placed in it just below the lower border of the right kidney, no implication of the general peritoneal cavity need be anticipated. Morison recommends a transverse rather than a vertical incision for dealing with gall-stones, and thinks that not only is drainage more effectually provided for in this way, but also that there will be less risk of subsequent hernia. The gall-bladder should never, in his opinion, be attached to the abdominal wall, except when suppuration is present; under other circumstances it or the ducts should be entirely closed after they have been incised; or, if this is impracticable, they may be left entirely open, provided drainage in the way indicated above is allowed for. Cases are recorded in verification of these contentions.

*Obstruction from gall-stones.*—**Mayo Robson** (*Trans. Med.-Chir. Soc. London*, 1895, p. 117) points out that gall-stones may give rise to obstruction of the bowel in four different ways: (a) From local peritonitis in the region of the gall-bladder, leading to paralysis of the gut; (b) from volvulus of the small intestine induced by the vigorous peristalsis; (c) by mechanical impaction of the stone in the small intestine; (d) by secondary cicatrization, induced by the inflammatory processes caused by the presence of the calculus, coming on some time afterwards. Cases illustrating these conditions were described and the treatment was discussed. In the first class, nothing more than medical treatment is required as a rule. In the second group, operation is absolutely necessary. In the third, which is more common than the others, it may be possible to deal with the case by medical means, including manipulation under an anæsthetic; but operative treatment must not be too long delayed. When once the obstruction has been found, it may be practicable to break up the stone from *without*, but incision of the bowel is perhaps the better course to *adopt*. Should the patient be much collapsed, enterotomy or short

circuiting may be wiser than attempting removal. In the last class of cases the surgeon must be guided by the symptoms and conditions actually present; it is impossible to lay down definite rules for treatment.

*Traumatic laceration of the liver.*—Zeidler (*Deutsche med. Woch.*, 1894, No. 37) relates three cases in which he has performed laparotomy for wounds of the liver, with a successful issue, two of them being penetrating wounds, and the other a subcutaneous rupture. In none of them were the symptoms those usually described as characteristic of such a lesion, but only those of a general intra-abdominal injury. In one case plugging of the wound was resorted to, in another cauterisation, and in the third both cauterisation and tamponade. The conclusions he draws as to treatment in such conditions are that in superficial parenchymatous bleeding wounds cauterisation is the best, that deep punctures should be sutured, that long canals should be plugged, as also wounds where the sutures will not hold, but cut their way out.

*Method of emptying an obstructed bowel.*—Thornley Stoker (*Brit. Med. Journ.*, Jan. 26, 1895), in discussing the treatment of cases of obstruction due to impaction of fæces, the result of an atonic condition of the bowel, recommends the use of copious enemata, given according to the manner he always adopts. He criticises unfavourably the administration of opium and of purgatives; if used at all, he thinks that calomel is not so satisfactory as salines. The O'Beirne's long tube is considered by him a hoary impostor, as likely to do harm as good. He lays the patient on his back or side, with the pelvis well raised, and introduces a rubber tube equal in size to a No. 12 or 14 catheter for a distance of 3, 6, or 9 inches, and attaches to the end of it a funnel. Warm water is now poured into the funnel and allowed to run into the rectum until the patient can retain no more; the funnel is then lowered, and the fluid, together with any softened fæcal material or flatus, allowed to escape. This process is continued until perhaps two or three gallons of fluid have been used. By repeated operations of this kind the bowel can often be emptied without the patient being at all exhausted, or suffering any serious inconvenience. He also thinks the plan useful in cases of paralysis from peritonitis. Althaus, in the same number of the *British Medical Journal*, recommends the use of strong faradic currents in similar conditions where it may be anticipated that the obstruction may be overcome by a strong peristaltic contraction of the bowel, and relates two cases treated successfully in this way.

*Appendicitis.*—A large amount of material has been contributed

to the journals during the past year as to the nature and treatment of this affection, and it is impossible to give anything like a summary even of a title of it. There is still a considerable difference of opinion amongst authorities as to the desirability or not of operating, and also as to when an operation is necessary. American surgeons favour active interference in cases in which in England nothing would be considered necessary; and the fact that a single surgeon—**Murphy**, of Chicago—can report 207 cases operated on up to date (*Medical News*, Jan. 5, 1895) shows how completely this idea dominates their practice. The death-rate in these cases is 9·93 per cent. In fact, this surgeon is the leader of a band of followers who maintain that operation is essential in every case of appendicitis. On the other hand, in England more temperate and more conservative ideas predominate, as indicated in the Barling lectures by **Gilbert Barling** (*Brit. Med. Journ.*, May 25—June 8, 1895) and in one by **Clutton** (*Clinical Journ.*, May 15, 1895). A very judicious paper is contributed by **Gay** (*Boston Med. and Surg. Journ.*, Jan. 31, 1895), who points out that about one-half of the cases recover with simple dietetic and medical treatment without operation. He considers that surgical interference should be resorted to under the following conditions: 1. Where the symptoms commence acutely, indicating perforation or gangrene of the process, operation on the second or third day, or even earlier, is imperatively called for. 2. In cases of moderate severity, operate on the third or fourth day if there are no sure and marked signs of improvement. The passage of flatus is looked on as a sign of the greatest value, no patient being considered safe until this has occurred. 3. Slight cases may require operation if the symptoms of improvement come to a standstill. 4. Frequent exacerbations or relapses specially call for operation, since they indicate the existence of a state of affairs which Nature is unable to repair. More mistakes are made by late than by early interference in such cases. Two attacks with but a short interval between would be considered a sufficient justification for interference. 5. Cases of doubtful diagnosis in which the symptoms do not subside within a reasonable time may be subjected to exploratory incision, with the expectation that more good than harm will be done in the long run. On the other hand, operation is contraindicated in slight cases and those of moderate severity that show signs of improvement by the third day; whilst it is never advisable to operate on patients in a state of profound collapse.

It is usually considered advisable merely to open the abscess and evacuate the pus, unless the appendix is easily found, and

then it should be removed. After one attack of suppurative appendicitis it is a generally-accepted view that sufficient changes are set up in the neighbourhood to prevent any risk of further trouble. **Stimson** (*Annals of Surgery*, May, 1895, p. 597) has raised the question whether after all this is the best practice to adopt, since two instances had recently occurred to him in which—in one case after two attacks—the appendix was subsequently found to be free within the peritoneal cavity and practically without adhesions. He therefore advises that, after opening the abscess, adhesions should be broken down, and the appendix sought for and removed, provided that too great danger is not thereby run.

As to the technique of removal of the vermiform process, **Barker** (*Brit. Med. Journ.*, April 20, 1895) describes a plan he has recently adopted which is simple and satisfactory. After freeing the process from its mesentery, he makes a circular incision around it near to its base, involving merely the serous and muscular coats. This is turned back as a cuff towards the cæcum, and the tube of mucous membrane within is ligatured with catgut, and then the cuff replaced and ligatured in its turn.

*Inversion of the vermiform appendix.*—**Edebohls** (*American Journal of the Medical Sciences*, June, 1895) recommends that, instead of ligature of the appendix, whether accompanied or not with depression of the stump by drawing the peritoneum over it, the process should be inverted into the cavity of the cæcum. He claims that this is by no means difficult to accomplish in simple cases where there is no thickening, and even when the distal segment is enlarged and thickened it may be undertaken to the base after removing the bulbous end. The appendix is first freed, the meso-appendix cleanly divided, and then the inversion accomplished by gentle manipulation; to prevent its reinversion the peritoneal opening is secured by a few stitches passed through the serous coat. What happens to the appendix after such treatment the author does not know, and does not seem to care. Certainly one cannot help feeling that it might, without much difficulty, give rise to an intussusception later. He reports several cases treated in this way most successfully, and states that it is always practicable except where the process is gangrenous to the very base, or when the adhesions surrounding it are of such a nature as to render it dangerous to interfere with them. So enamoured is Edebohls of the proceeding that he suggests that whenever the surgeon has the opportunity of exposing the appendix he should always undertake this little operation, which can readily be performed in five minutes, so as to minimise the chances of a subsequent attack of appendicitis!



*The treatment of the diffuse form of septic peritonitis resulting from appendicitis* is the subject of a communication by **McBurney** (*Medical Record*, March 30, 1895), in which, after discussing briefly the origin of the trouble, he relates the various methods he has adopted in its treatment. At first the appendix was sought for through an incision in the linea semilunaris and removed, the effused fluids sponged away, the spaces between the intestines syringed out with a sublimate lotion, and one or more drain-tubes inserted with gauze packing about the stump of the appendix. All the cases treated in this way died. Long glass tubes were then used which could reach the hypochondriac region, and thorough syringing was employed, but with no better results. Syringing was then given up entirely, since it appeared rather to spread than to check the inflammatory process. The use of rubber tubes was also discarded in favour of glass ones, through which a strip of gauze could be passed, in order that a continuous capillary drain might be thereby obtained. It has also been proved that any antiseptic lotions have a deteriorating effect upon the integrity of the endothelium of the peritoneum, and hence **McBurney** has lately employed merely normal salt solution (6 parts per 1,000), at or above the body temperature, for the purpose of flushing out the peritoneal cavity; by this means the absorbing power of the peritoneum is not impaired. The operation is conducted in the main along the following lines:—A good-sized incision is made parallel to the outer end of Poupert's ligament, the peritoneal cavity opened, and as much of the contained fluids removed by sponges as possible; the appendix is sought for and removed, and then any further collections of fluid either in the pelvis or amongst the coils of intestines are looked for and opened by means of a sponge set on a handle. The cavity is then thoroughly washed out with saline solution, and drainage provided for by inserting a glass tube into the pelvis with a capillary gauze drain within it, and by packing in various lengths of gauze, if considered necessary, amongst the intestines. The wound is left open and no suturing of any kind attempted. Nutrition is maintained by the rectum for a day or two; the deep packing of the wound is not disturbed for three or four days, and may often be left longer. Up to the date of the paper, twenty-four cases had been dealt with by the author in this way, and of these fourteen had recovered—a most satisfactory record.

*Colectomy.*—**F. T. Paul** (*Liverpool Med. Chir. Jour.*, July, 1895) relates seven cases of excision of portions of the colon, with the *methods adopted* and the results. The three first patients died *right from the effect* of the operation, in which an attempt was

made to effect union of the divided segments by invagination and suture. The fourth patient recovered with an artificial anus ; the fifth died as a result of the attempt to re-establish the continuity of the bowel after an artificial anus had been successfully provided. The last two recovered from the immediate effects of the excision ; in one the artificial anus was closed, but in the other the patient died of uræmia during the treatment necessary to effect this object. The plan adopted in the latter cases consisted in freeing the growth from its connections and withdrawing it from the abdominal cavity ; the tumour and attached portion of the mesentery were then excised, and glass drainage-tubes tied into the two ends of the gut, which were sutured together side by side and fixed in the abdominal wound. About three weeks later an attempt was made to divide the spur by the use of Dupuytren's enterotome, and subsequently the anus præternaturalis was closed by sutures. Paul recommends this plan in all the less favourable cases where too prolonged an interference might prejudice the patient's chances, but in the simpler and more hopeful instances he advises immediate union to be attempted by the use of Murphy's button.

*Splenectomy.*—Murphy of Sunderland (*Brit. Med. Journ.*, Nov. 3, 1894) records a case in which he removed the spleen for simple hypertrophy which was giving rise to much pain and considerable respiratory embarrassment owing to its size. There was no leucocythæmia, and the other organs of the body were tolerably healthy. At the operation the omentum and transverse colon were found adherent to the spleen and needed to be separated from it, a proceeding which entailed the loss of a few ounces of dark venous blood. The wound was closed and without any provision for drainage. The patient was terribly collapsed, but subsequently did well. A short summary follows of the conditions in which splenectomy is called for, and although the mortality has been high, the successes are such as to warrant operation, except when the organ is enlarged as a result of leucocythæmia. Hahn (*Deut. med. Wochen.*, July 11, 1895) relates another case in which the spleen was removed on account of a splenic hydatid. As a general rule he recommends that when the walls of the cyst are tolerably firm it is wiser to stitch the tumour to the abdominal parietes and then incise and drain it ; in this case the cyst wall was so thin that such a proceeding would have been impracticable. No subsequent enlargement of thyroid body or of lymphatic glands was noticed whilst the patient remained under observation. Another case of splenectomy by Snegirjeff has already been alluded to (p. 186).

*The treatment of floating spleen* has hitherto been in a most unsatisfactory condition, since the only method which has been practised till quite recently has been that of splenectomy. It is obvious that such a procedure is unadvisable if anything else can be substituted, since it is by no means free from risk, 30 per cent. of the patients dying, and, moreover, it must have an appreciable effect on the economy. There is really as little justification for removal of the spleen on account of its mobility as there would be for proposing nephrectomy on account of a movable kidney. Rydygier of Cracow (*Centr. für Chir.*, Appendix to No. 27, 1895, p. 106) relates a case in which he performed splenopexy or fixation of the viscus outside the peritoneal cavity. The abdomen was freely opened and the spleen found attached to a long and movable pedicle; a transverse incision was then made through the peritoneum in the left hypochondriac region and a bed prepared beneath it, into which the spleen was slipped and fixed by sutures. More recently Plücker of Cologne (*Centr. für Chir.*, Oct. 5, 1895) reports another case dealt with in a similar way, but the spleen was placed slightly lower down, and the fixation accomplished through an external incision. The diagnosis was first made by a median laparotomy, the tumour felt being at first thought to be ovarian. A longitudinal incision was then made from the top of the tenth rib downwards, and a space cleared in the subserous tissue. The peritoneum was then incised and the spleen pushed out by the help of an assistant's hand compressing the abdominal wall. The margins of the opening in the parietal peritoneum were then stitched to the serous covering of the pedicle, and the spleen itself anchored by a few stitches to the tenth rib. Such a proceeding would seem to be much more satisfactory than that of Rydygier, since it involves no long intra-peritoneal operation, necessitates no holding back of the intestines in order to clear the field of operation, and is therefore much easier as well as more certain.

# ORTHOPÆDIC SURGERY.

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## **I. The treatment of congenital dislocation of the hip.**

Since the last report in the "Year-Book" of 1895 this subject has again attracted considerable attention, and papers on the subject are published by Lorenz (*Trans. Amer. Orthop. Assoc.*, vol. vii., 1895); Halsted Myers (*ibid.*); Gibney (*Annals of Surg.*, Dec., 1894); Lane (*Clinical Soc. Trans.*, Feb., 1895); Lorenz (*Centralb. für Chir.*, Feb., 1895), etc. The chief interest lies in the question of the operative treatment. The majority of surgeons appear now to have come to the conclusion that mechanical treatment, even though continued for years, is attended with very little, if any, improvement, except perhaps in very slight cases; and even in these it would seem doubtful if much real improvement is obtained. Walking in unilateral cases is no doubt improved by the patient wearing a high boot, especially where there is much shortening; but the use of this, it has been suggested, may have a tendency to increase the deformity by pushing the head of the bone farther upwards in the dorsal form of the dislocation. The method of forcible reduction advocated by Paci is only applicable to those cases in which some form of acetabulum exists into which the rudimentary head of the bone can be forced. How much of an acetabulum may be present in any individual case it may be difficult or impossible to determine. A slight jerk is sometimes experienced when the head is drawn down on making forcible extension, and is thought by some to point to the existence of a cavity. In that Paci's method is unattended with risk there can be no harm in trying it, especially in patients beyond the age of, say, seven to ten, after which age a cutting operation is by many considered to be counter-indicated. The reporter has practised forcible manipulation, but has to confess that he has never found it produce the

least alteration in the situation of the head of the bone. The injection of a 10 per cent. solution of chloride of zinc, as suggested by Lannelongue (*Bull. et Mém. de la Soc. de Chirurgie de Paris*, 1891, xvii., p. 770), for the purpose of exciting a bony growth at the site of injection appears to be unattended with danger, and some successful cases have been reported. A long hollow needle of a Pravaz syringe is carried down to the bone, and the injections are made as much as possible under the periosteum. A row of punctures is made around the joint to the number of eight or more, and the injections repeated after two or three weeks. A deep-seated projection of bone is said to form a few weeks subsequently. Lannelongue and Coudray each report a cure by the injection method, and Jevell three cases, in two of which there was a cure. Both Lannelongue and Coudray, however, supplemented their treatment by continuous extension and immobilisation of the hip, the extension lasting in one case for five months. "The injection," says Halsted Myers, "is so simple that, if it is as free from pain and danger as its author claims, it would seem a valuable addition to our treatment, especially after reduction has been attempted without opening the joint." A similar attempt to excite a bony growth by opening the joint and inserting steel pins in the posterior rim of the acetabulum (Gussenbauer, *Annales d'Orthopédie*, May, 1893) was not successful.

Continuous extension has not been attended with the favourable results that were hoped for by its advocates. "As far as I know," says Myers, "every case treated by continuous extension, and afterwards by walking apparatus, has relapsed sooner or later. The celebrated case of Dr. Buckmaster Brown [reported in the "Year-Book" for 1893] has relapsed, and Dr. Post's case has suffered a slight relapse. In the face of the evidence showing that after years of continuous extension relapses occur—even in cases which appear to be most successful at the time of leaving off the apparatus—it would seem barely justifiable to subject our patients to so long a period of recumbency or instrumental extension, and the consequent detriment to their general health." Hoffa and Lorenz are still enthusiastic supporters of their operations (see "Year-Books" 1893 and 1894). Lorenz says he has gradually perfected a method of procedure "in the reduction of the dislocation by which all the muscles moving the hip-joint are spared. At the worst in older children the popliteal tendons are subcutaneously divided." Up to the end of August, 1894, he had operated upon ninety-nine cases of congenital dislocation of the hip-joint after his method without a single failure ;

up to February, 1895, on 140 cases (*Centralblatt für Chirurgie*, Feb. 16, 1895). The results, he claims, are excellent, one girl being able after only four days to set her foot upon the ground and walk pretty fairly. Among five children who have been operated upon on both sides within a year of the operation scarcely a trace of limping was noticeable. All walked gracefully, whilst those operated on more than a year ago marched erect with an almost military step! In none of the cases that the reporter has seen have anything like the same results been attained. Indeed, he could not bring himself to see that much benefit, if any, had been derived. Lorenz's perfected method is performed as follows:—By means of an incision from the anterior superior spine downwards between the tensor fasciæ latæ and the sartorius the joint is exposed in front. The rectus femoris, iliopsoas, and sartorius remain intact. The acetabulum is then hollowed out, and, if necessary, the head of the femur is moulded to fit it. By powerful traction (with extension-screw, if necessary) the head is brought to the acetabular cavity. At the worst the reduction is effected by means of the tenotomy of the popliteal tendons. In severe cases preparatory extension is to be recommended. After adjusting the head in the acetabulum, the field of operation is carefully cleaned, the wound is closed, and the limb is placed in a position of slight abduction. Massage and gymnastic treatment are begun at about the fourth week after the operation, and may have to be continued for several months. The advantages claimed for this method are:—(1) The slight injury. (2) The saving of the muscular apparatus, which is of itself easier than the restoration of that function. (3) The acetabulum lies in the anterior part of the wound, and is thus more superficial than if it were in the posterior; and (4) the easy accessibility of the parts.

Lane, at the Clinical Society of London, February 8 (*Lancet*, Feb. 16, 1895), showed a boy and girl on whom he had performed a modified Lorenz's operation of placing the head of the femur in a cavity cut in and beneath the anterior inferior spinous process of the ilium, the proximal limit of the anterior portion of the capsule being sewn firmly to the fibrous tissues about the anterior inferior spine, and to the straight head of the rectus femoris at its origin, this having been cut carefully away from its attachment to the innominate bone so as to leave quite enough to make a strong retaining ligament in its new position. The thigh was rotated outwards and fixed in a suitable apparatus at an angle with the foot of about 50° more with the vertical. At the same time movements w<sup>e</sup>

*Surgey*, August, 1895), points out that a natural pouch exists in the right hypochondrium, through which drainage for operations on the gall-passages can be conducted most efficiently without risk of the general peritoneal cavity being involved. It is bounded above by the right lobe of the liver, internally by the peritoneum lying in front of the spine, which is here very prominent, and also by the free edge of the gastro-hepatic omentum with the foramen of Winslow; externally it is limited by the parietal portion of the serous membrane, whilst below, the duodenum, covered by the ascending layer of the transverse mesocolon, forms a partial barrier to the extension of fluids downwards. This space is stated to be capable of containing a pint of fluid without overflowing, and if a drainage-tube is placed in it just below the lower border of the right kidney, no implication of the general peritoneal cavity need be anticipated. Morison recommends a transverse rather than a vertical incision for dealing with gall-stones, and thinks that not only is drainage more effectually provided for in this way, but also that there will be less risk of subsequent hernia. The gall-bladder should never, in his opinion, be attached to the abdominal wall, except when suppuration is present; under other circumstances it or the ducts should be entirely closed after they have been incised; or, if this is impracticable, they may be left entirely open, provided drainage in the way indicated above is allowed for. Cases are recorded in verification of these contentions.

*Obstruction from gall-stones.*—**Mayo Robson** (*Trans. Med.-Chir. Soc. London*, 1895, p. 117) points out that gall-stones may give rise to obstruction of the bowel in four different ways: (a) From local peritonitis in the region of the gall-bladder, leading to paralysis of the gut; (b) from volvulus of the small intestine induced by the vigorous peristalsis; (c) by mechanical impaction of the stone in the small intestine; (d) by secondary cicatrization, induced by the inflammatory processes caused by the presence of the calculus, coming on some time afterwards. Cases illustrating these conditions were described and the treatment was discussed. In the first class, nothing more than medical treatment is required as a rule. In the second group, operation is absolutely necessary. In the third, which is more common than the others, it may be possible to deal with the case by medical means, including manipulation under an anæsthetic; but operative treatment must not be too long delayed. When once the obstruction has been found, it may be practicable to break up the stone from *without*, but incision of the bowel is perhaps the better course to *adopt*. Should the patient be much collapsed, enterotomy or short



circuiting may be wiser than attempting removal. In the last class of cases the surgeon must be guided by the symptoms and conditions actually present; it is impossible to lay down definite rules for treatment.

*Traumatic laceration of the liver.*—Zeidler (*Deutsche med. Woch.*, 1894, No. 37) relates three cases in which he has performed laparotomy for wounds of the liver, with a successful issue, two of them being penetrating wounds, and the other a subcutaneous rupture. In none of them were the symptoms those usually described as characteristic of such a lesion, but only those of a general intra-abdominal injury. In one case plugging of the wound was resorted to, in another cauterisation, and in the third both cauterisation and tamponade. The conclusions he draws as to treatment in such conditions are that in superficial parenchymatous bleeding wounds cauterisation is the best, that deep punctures should be sutured, that long canals should be plugged, as also wounds where the sutures will not hold, but cut their way out.

*Method of emptying an obstructed bowel.*—Thornley Stoker (*Brit. Med. Journ.*, Jan. 26, 1895), in discussing the treatment of cases of obstruction due to impaction of fæces, the result of an atonic condition of the bowel, recommends the use of copious enemata, given according to the manner he always adopts. He criticises unfavourably the administration of opium and of purgatives; if used at all, he thinks that calomel is not so satisfactory as salines. The O'Beirne's long tube is considered by him a hoary impostor, as likely to do harm as good. He lays the patient on his back or side, with the pelvis well raised, and introduces a rubber tube equal in size to a No. 12 or 14 catheter for a distance of 3, 6, or 9 inches, and attaches to the end of it a funnel. Warm water is now poured into the funnel and allowed to run into the rectum until the patient can retain no more; the funnel is then lowered, and the fluid, together with any softened fæcal material or flatus, allowed to escape. This process is continued until perhaps two or three gallons of fluid have been used. By repeated operations of this kind the bowel can often be emptied without the patient being at all exhausted, or suffering any serious inconvenience. He also thinks the plan useful in cases of paralysis from peritonitis. Althaus, in the same number of the *British Medical Journal*, recommends the use of strong faradic currents in similar conditions where it may be anticipated that the obstruction may be overcome by a strong peristaltic contraction of the bowel, and relates two cases treated successfully in this way.

*Appendicitis.*—A large amount of material has been contributed

to the journals during the past year as to the nature and treatment of this affection, and it is impossible to give anything like a summary even of a tithe of it. There is still a considerable difference of opinion amongst authorities as to the desirability or not of operating, and also as to when an operation is necessary. American surgeons favour active interference in cases in which in England nothing would be considered necessary; and the fact that a single surgeon—**Murphy**, of Chicago—can report 207 cases operated on up to date (*Medical News*, Jan. 5, 1895) shows how completely this idea dominates their practice. The death-rate in these cases is 9·93 per cent. In fact, this surgeon is the leader of a band of followers who maintain that operation is essential in every case of appendicitis. On the other hand, in England more temperate and more conservative ideas predominate, as indicated in the Barling lectures by **Gilbert Barling** (*Brit. Med. Journ.*, May 25—June 8, 1895) and in one by **Clutton** (*Clinical Journ.*, May 15, 1895). A very judicious paper is contributed by **Gay** (*Boston Med. and Surg. Journ.*, Jan. 31, 1895), who points out that about one-half of the cases recover with simple dietetic and medical treatment without operation. He considers that surgical interference should be resorted to under the following conditions:

1. Where the symptoms commence acutely, indicating perforation or gangrene of the process, operation on the second or third day, or even earlier, is imperatively called for.
2. In cases of moderate severity, operate on the third or fourth day if there are no sure and marked signs of improvement. The passage of flatus is looked on as a sign of the greatest value, no patient being considered safe until this has occurred.
3. Slight cases may require operation if the symptoms of improvement come to a standstill.
4. Frequent exacerbations or relapses specially call for operation, since they indicate the existence of a state of affairs which Nature is unable to repair. More mistakes are made by late than by early interference in such cases. Two attacks with but a short interval between would be considered a sufficient justification for interference.
5. Cases of doubtful diagnosis in which the symptoms do not subside within a reasonable time may be subjected to exploratory incision, with the expectation that more good than harm will be done in the long run.

On the other hand, operation is contraindicated in slight cases and those of moderate severity that show signs of improvement by the third day; whilst it is never advisable to operate on patients in a state of profound collapse.

*It is usually considered advisable merely to open the abscess and evacuate the pus, unless the appendix is easily found, and*

then it should be removed. After one attack of suppurative appendicitis it is a generally-accepted view that sufficient changes are set up in the neighbourhood to prevent any risk of further trouble. **Stimson** (*Annals of Surgery*, May, 1895, p. 597) has raised the question whether after all this is the best practice to adopt, since two instances had recently occurred to him in which—in one case after two attacks—the appendix was subsequently found to be free within the peritoneal cavity and practically without adhesions. He therefore advises that, after opening the abscess, adhesions should be broken down, and the appendix sought for and removed, provided that too great danger is not thereby run.

As to the technique of removal of the vermiform process, **Barker** (*Brit. Med. Journ.*, April 20, 1895) describes a plan he has recently adopted which is simple and satisfactory. After freeing the process from its mesentery, he makes a circular incision around it near to its base, involving merely the serous and muscular coats. This is turned back as a cuff towards the cæcum, and the tube of mucous membrane within is ligatured with catgut, and then the cuff replaced and ligatured in its turn.

*Inversion of the vermiform appendix.*—**Edebohls** (*American Journal of the Medical Sciences*, June, 1895) recommends that, instead of ligature of the appendix, whether accompanied or not with depression of the stump by drawing the peritoneum over it, the process should be inverted into the cavity of the cæcum. He claims that this is by no means difficult to accomplish in simple cases where there is no thickening, and even when the distal segment is enlarged and thickened it may be undertaken to the base after removing the bulbous end. The appendix is first freed, the meso-appendix cleanly divided, and then the inversion accomplished by gentle manipulation; to prevent its reinversion the peritoneal opening is secured by a few stitches passed through the serous coat. What happens to the appendix after such treatment the author does not know, and does not seem to care. Certainly one cannot help feeling that it might, without much difficulty, give rise to an intussusception later. He reports several cases treated in this way most successfully, and states that it is always practicable except where the process is gangrenous to the very base, or when the adhesions surrounding it are of such a nature as to render it dangerous to interfere with them. So enamoured is Edebohls of the proceeding that he suggests that whenever the surgeon has the opportunity of exposing the appendix he should always undertake this little operation, which can readily be performed in five minutes, so as to minimise the chances of a subsequent attack of appendicitis!

and nearly through the axillæ at each end. At the upper and lower ends of the uprights and the ends of the chest bands, straps run to connect these parts with the posterior brace. Behind the upper part of the apparatus, and secured to the uprights, is a stiff leather perforated chest-piece, which covers the front of the thorax as far as the ensiform cartilage, but the abdomen is generally left uncovered. Thus constructed, the combination of anterior and posterior braces constitutes a skeletal support, to which parts may be added to meet individual requirements.

It is claimed for this combination that : (1) All the available space is utilised for the application of force both of leverage and traction ; (2) the force applied for the purpose of leverage is expended entirely in the antero-posterior direction ; (3) the anterior and posterior braces nearly meeting at the sides, lateral support is amply provided in every case where recumbency is not needed ; (4) the grasp of the trunk, as a whole, for the purpose of counter-traction in disease of the upper spine is as complete as possible ; (5) there is an absence of circumferential pressure, so that the abdominal, diaphragmatic and lateral thoracic movements are unobstructed ; (6) the directly backward pressure of the leather apron serves to antagonise any tendency to an anterior protrusion of the chest, to exert through the ribs a leverage upon the diseased vertebræ, to preserve or restore the normal postero-lateral curvature of the ribs, and so enhance the respiratory functions, and to keep the diseased spine in normal relation to the posterior chest wall on either side ; (7) the back or any part of the trunk can at any time be readily inspected ; (8) the apparatus can be easily modified, and pressure on any part accurately adjusted ; (9) it is so simple that any blacksmith can make it ; (10) the functions of the skin as a respiratory organ are respected.

**Ridlon.** "The Mechanical Treatment of Infantile Paralysis" (*Trans. Amer. Orthop. Ass.*, vol. vii.). Ridlon considers that we are too prone to take a hopeless view of these cases. The mechanical treatment of infantile paralysis should begin during the first stage—the acute attack—and should consist of any simple and convenient dressing which will put that part at rest in the normal position. Such treatment will often be followed by complete restoration of movement. The limb otherwise will soon assume a more or less deformed position. If so, the deformity must be rectified before attempting further treatment. Thus, the overstretched muscles should be restored to their normal length by placing the limb in such a position as will most completely relax them, and for a sufficiently long period—six to seven months. Many muscles that at first appear to be wholly

paralysed regain much of their former contractility when given the advantage of diminished length. The second stage of treatment—that of stimulating muscular activity—requires the continuance of retentive appliance, but such as allows a certain range of motion. For instance, in the usual paralytic condition below the knee, with dropping of the foot, Ridlon uses a Judson brace without motion at the ankle-joint for the first stage of movement, but during the second stage he places a stop-joint between the foot-plate and the leg-piece to prevent dropping of the foot, while, at the same time, it permits flexion of the dorsum of the foot towards the shin at the end of each step in walking. Stimulation of the part may be obtained by baking the limb in a special oven, but this can rarely be carried on outside an institution. A simple device which serves almost, if not quite as useful an end as electricity, and, at the same time, takes the place of massage to an equal degree, is daily flagellation of the part with a short whip consisting of an iron handle ten or twelve inches long, to which is attached a double leather lash from an inch to an inch and a half in width. This instrument should be applied rapidly for a few minutes at a time over the paralysed muscles, with the limb held in such a position as most completely relaxes the muscles. Where the paralysis of a muscle or group of muscles is complete, much may be done by obtaining an exaggerated degree of structural shortening in them. The extremity should be placed in the extreme opposite deformity to that to which it tends, and so held for at least a year or eighteen months; not once in all that time must the limb be allowed to drop.

#### **6. The treatment of congenital wry neck.**

**Mikulicz.** “Extirpation of the Sterno-Mastoid Muscle in Muscular Torticollis” (*Centralb. für Chir.*, Jan. 5, 1895). Mikulicz only advises this treatment in severe cases that do not yield to orthopædic means or to simple tenotomies. Since April, 1891, he has had twenty-five cases of muscular torticollis. In three slight cases orthopædic treatment sufficed; in five, subcutaneous tenotomy was practised; in seventeen, the muscle was extirpated—eight times partially, nine times completely. Of the seventeen extirpations, in fifteen the wound united by the first intention; in two there was slight suppuration. The result has always been excellent; much better, Mikulicz considers, than could have been obtained by a simple tenotomy. The only disadvantage is a certain amount of weakness left in the region. The operation is done as follows:—A longitudinal incision is made 3 or 4 centimetres long between the sternal and clavicular

portions of the muscle. Each of these portions is successively bared and raised without injuring the subjacent parts, then divided at its attachments to the sternum and the clavicle. The neck is then bent in the direction required, and through the little wound the entire muscle can be drawn, except the posterior and superior portion, which is crossed by the spinal accessory nerve. After taking away the whole of the muscle (*sic*), the head is bent as far as possible in the opposite direction, and some strands of the muscular sheath, which is always retracted, are excised. The dangers to be avoided are wounding the external jugular vein and the spinal accessory nerve. The wound is carefully sutured, but not drained, and a light dressing with the head fixed in the rectified position is applied.

The operation appears to the reporter a very serious procedure. In all the very numerous cases that have presented themselves in the Orthopædic Department at St. Bartholomew's, he has never failed to overcome the deformity by subcutaneous incision, made, if necessary, in the upper portion of the muscle, as well as in the ordinary situation immediately above the clavicle. In very few cases, he would imagine, could such a serious operation as the removal of the whole muscle be needed.

**Lorenz.** "The Treatment of Muscular Torticollis" (*Centralb. für Chirurgie*, Feb. 2, 1895). Lorenz starts on the assumption that torticollis is a cervical scoliosis of muscular origin, with a complete compensatory dorso-lumbar curve, and a very incomplete occipital one. The rectification of the head by cutting, or even excision of the muscle, only does away with the occipital compensatory curve; the cervical scoliosis is merely hidden, and the dorso-lumbar compensatory curve is exaggerated. It is the rectification of the cervical scoliosis that should be aimed at, and operative treatment should only be regarded as a preliminary step that allows the cervical column to be modelled into the rectified position. Thus the head should be over-corrected as much as possible—by making the ear opposite the affected side touch the shoulder. Immediately after the tenotomy, the head should be so fixed, and thus kept for ten or fourteen days. Exercises and rectification should be systematically carried out on removal of the dressings at the end of this time. Lorenz has never seen a relapse in fifteen cases so treated that he has been able to follow. His method, he says, renders total extirpation of the muscle superfluous.

#### **7. Treatment of flatfoot.**

**Penny.** "Gaiter Support for Flatfoot and Talipes Valgus" (*Lancet*, Feb. 16, 1895, p. 417). Penny uses this support in cases of flatfoot combined with a valgous condition, such as is

found in delicate or rachitic children. It consists of a gaiter of black kid, reaching from the tubercle of the tibia to the malleoli, and lacing in-front. Running the entire length of the inner side of the gaiter is a steel bar, to the upper part of which a buckle is attached. A piece of webbing passes round the ankle to the outer side, where one end is buttoned to the main band, and is continued under the hollow of the sole to the inner side, where a piece of stout black elastic is attached to it, and to the other end of the elastic a black kid strap, which is then buckled at the top of the gaiter. By this strap the elastic and webbing can be drawn up to the required pitch and altered at will. The advantages of this support are—(1) it can be fitted to any leg, and will keep its place, however thin the leg may be; (2) the boots can be changed or slippers worn without interfering with it; (3) it is neat, and on casual observation looks like a high French boot; and (4) in suitable cases it is very comfortable to the patient, the elastic acting as an artificial calcaneo-scaphoid ligament.

**Martin.** "Orthopædic Treatment of Painful Flatfoot" (*Revue d'Orthopédie*, May, 1895). Martin relies on orthopædic methods for the cure of flatfoot. He applies a Venel's shoe, so that the foot can be rectified slowly and gradually; it is taken off two or three times a day to allow of manipulation towards the rectified position. He especially directs his attention towards the electrification of the tibialis anticus. This muscle he has found in his cases to be completely inert, an observation, he says, which seems to have escaped the notice of other authors. A marked improvement in the condition of the foot follows when the muscle has regained its power. Martin is not by any means the first author who has called attention to the condition of the tibialis anticus in flatfoot. Several have attributed the flattening to a weakness of the muscle and have directed their treatment to improving its tone. The reporter has never detected any weakness in the muscle, though he has examined in the Orthopædic Department upwards of twelve hundred cases of flatfoot, and Golding-Bird says (*Guy's Hospital Reports*, vol. ii., 1882) that he has diligently searched for such weakness in a large number of cases, but has never been able to satisfy himself of its existence.

### **8. The treatment of club foot.**

**Killock.** "A Modification of Phelps's Operation for the Relief of Talipes Equino-Varus" (*Lancet*, March 30, 1895). To overcome the tendency that exists after Phelps' operation for the foot in front of the wound to become slightly adducted and the sole inverted as a result chiefly of the cicatrization of the large wound necessarily entailed by the operation, Killock has devised the



following modification which he was able to carry out in a girl of six, the subject of bad congenital talipes equino-varus. After Phelps's operation had been done, a flap of the whole thickness of the skin about an inch wide was cut on the outer side of the foot and dissected off the underlying structures, the skin being brought together underneath by sutures. Five or six days later, the flap appearing to be thoroughly well nourished, the lower end was divided and, the upper end being left still attached, was turned across and secured by one or two horsehair stitches to the deep wound on the inner side of the foot, which was by this time mostly covered with granulation tissue. The foot and leg were then fixed in plaster-of-Paris. The result ten months after the operation was very satisfactory, the foot being in good position, with more strength in it than one dared hope for, says Killock, after division of the tendons of so many important muscles.

**Swan.** "New Operation for the Cure of Rotation Inwards of the Entire Limb in Equino-Varus" (*Lancet*, March 30, 1895, p. 814). This operation consists in transversely dividing the tibia alone at the junction of its middle and lower thirds, leaving the fibula intact. The lower fragment is rotated outwards and the foot thus brought into a straight position. In many cases Swan has found this plan very successful.

**Muirhead Little** (*Brit. Med. Journ.*, Oct. 19th, 1895) advocates the removal of a wedge-shaped piece from the back of the astragalus and anterior end of the os calcis in cases of congenital equino-varus, in which the equinus cannot be completely overcome by orthopædic means. In some cases this procedure is sufficient, but in others in which the reporter has employed it the astragalus had ultimately to be removed.

### **9. The treatment of scoliosis.**

**Schede.** "Apparatus for the Correction of Scoliosis" (*Trans. Amer. Orthop. Assoc.*, vol. vii.). This apparatus has been greatly improved by the originator, and he finds it exerts a greater influence upon the bony framework of the thorax than any other. The patient is suspended within an iron gallows-like frame; the hands high outstretched grasp two handles. The pelvis is fixed between two compress pads which fix it immovably from before backwards. Another such arrangement fixes the shoulder girdle. The thorax is surrounded at a distance of 6 inches by a strong iron ring which holds the necessary supporting apparatus and interposes the working of the forces which tend to remove the deformity, namely, the detorsioning traction and the pressure by compress pads. The pressure-force is applied by strapping-plaster to which a cord and weight, working over a pulley in the thorax-

ring, is attached. The piece of strapping is fixed to the thorax on the convex side, and is carried over the backwardly rotated ribs forwards to the ring so as to give a forward twist. A second piece runs backwards from the centre of the sternum and gives a backward pull on the concave side. The torsion is aided by pressure pads worked by screws passing through the thorax-ring.

# SURGICAL DISEASES OF CHILDREN.

BY EDMUND OWEN, M.B., F.R.C.S.,

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**1. "The Surgical Diseases of Children and their Treatment by Modern Methods"** is the title of an excellent work by D'Arcy Power, M.A., F.R.C.S. (H. K. Lewis).

Early in the book we find that the author is shy of using solutions of mercuric perchloride and of carbolic acid in the case of large absorbent surfaces—a feeling which I thoroughly share with him; indeed, I shall allude to this matter further on in this article. I note with pleasure that in his endeavour to cleanse a septic cavity he employs a solution of that old-fashioned and trustworthy agent—chloride of zinc. Chloride of zinc, too (1 in 15), he uses for swabbing out caseating sinuses when operating on tuberculous cervical glands. "Many surgeons," he says, "prefer to dust the wound with iodoform, boric acid, or nitrate of bismuth; but I find that such applications are unnecessary, as the repair takes place equally well without them" (p. 57). With this expression of opinion I entirely agree. Indeed, personally, I would be inclined to place iodoform amongst the impostors of materia medica. Surgeons who introduced it into practice must have been attracted to it chiefly by its odour. Probably musk and castor would never have gained admittance into the Pharmacopœia but for a similar quality.

Speaking of the treatment of tuberculous bone-abscesses, Mr. Power says (p. 65): "I used to fill the cavities with iodoform, camphorated naphthol, bismuth, boric acid or other disinfectant; but as time goes on I find myself less inclined to use any anti-septic in these cases." I have gone through a very similar experience, and now, having washed out the cavity with a solution of zinc chloride (grs. 10 to 3i), I do nothing more. Indeed, the whole tendency of modern methods seems to be from antiseptics to asepticity.

*Under the heading of the Operative Treatment of Enlarged*

Tonsils, Mr. Power alludes to the important subject of hæmorrhage after tonsillotomy, and writes approvingly of the plan of tying a loose ligature around the external carotid artery and pulling upon it when bleeding occurs. I think that an ingenious surgeon would be better occupied in applying direct and astringent pressure upon the bleeding surface.

Diseases of the kidneys and bladder are dealt with very fully, but though, as Mr. Power admits, "until 1885, lateral lithotomy was always performed, and with excellent results," he does not "further consider" the various steps of the operation, but occupies his space with a careful description of litholapaxy and the suprapubic method. For my own part, I cannot believe that a method with so great a past as that with which Cheselden's name is associated is henceforward to remain in the neglected condition to which the suprapubic operation has for the present left it.

## **2. Toxic symptoms due to the absorption of carbolic acid, naphthol and other drugs applied locally.**

I have just alluded to the fact that Mr. Power expresses himself as shy of solutions of mercuric salts and of other potent antiseptics in children. The application of such lotions, even to the unbroken skin in children, is dangerous. **Clement Lucas** and **Arbuthnot Lane** report (*Lancet*, June 1, 1895) two cases of carbolic-acid coma and other toxic effects induced by the application of compresses to the skin. It has long (they say) been our practice to apply to the skin a compress of lint soaked in a 5 per cent. solution of carbolic acid in water for a variable time before an operation. With the exception of the cases we are about to relate we know of none that have presented serious symptoms. Headaches and sickness, together with carboloria, may occasionally have been noticed, and the earlier symptoms may have been confused with those attributable to an anæsthetic; but in these children coma lasting for several hours was induced before operation was commenced. These symptoms, if they developed for the first time immediately after an operation, might cause the surgeon the greatest anxiety, as the cause might not be immediately obvious. Happily this peculiar susceptibility must be very rare.

*Case 1.*—A boy fifteen years was admitted Aug. 27th, 1894. During convalescence from typhoid fever, abscesses formed about the right hip, three sinuses remaining in the thigh and thickening of both femora. At noon a carbolic compress was applied over the right thigh to prepare him for an operation. In the evening he was very sick, and at 2.30 a.m. his breathing was

stertorous; he was insensible. He had vomited on the pillow. His pulse could not be counted at the wrist, but by the heart it was 200. He was in a profuse perspiration. There was no corneal reflex. He had not passed urine. At 10 a.m. he was still comatose. About half an hour later he regained partial consciousness, but was stupid all day. The urine was very dark from absorption of carbolic acid. On September 1st he was well. On September 3rd it was again arranged to operate, and, a short time before, some 5 per cent. solution of carbolic acid was applied on lint. Soon he was sick and shivering, and bathed in perspiration. His temperature was 95°, and his pulse scarcely perceptible. The operation was in consequence postponed, the compresses were removed, and the skin of the thigh was thoroughly washed with warm water. For two days his urine was dark from the absorption of carbolic acid.

*Case 2.*—A boy aged six-and-a-half years was admitted on January 30th, 1895, with a swelling in the right iliac fossa. The dresser applied to the skin a compress moistened with carbolic lotion (1 in 20) at 12.20 p.m. After it had been in position for an hour and ten minutes, the sister of the ward heard the child groaning. A few minutes later he was pale, collapsed, and comatose. There was marked dyspnœa. The pulse was 130; the respiration was 72. Ether and atropine were injected, and brandy was given by the rectum. The skin showed no sign of having been irritated by the carbolic lotion. At 4.30 p.m. the respirations were still shallow and rapid. The patient had been perspiring freely. At 7.30 p.m. he was conscious. He had vomited several times. He passed some dark green urine. It gave the reactions for carbolic acid.

In these cases the evidence of carbolic-acid poisoning seems to be unmistakable. The collapse, with low temperature and quick and feeble pulse, the vomiting, perspiration, and carboloria, and the recurrence of these symptoms on the reapplication of the compress, neither need nor are capable of any other explanation.

**Baatz** (*Semaine Méd.*, Oct. 24, 1894) relates two instances in which he saw the external application of a preparation of naphthol cause acute nephritis in two brothers aged six and eight years. In neither case had there been any previous renal trouble. One of the children died, and at the *post-mortem* examination the diagnosis of nephritis was duly verified.

**Lucas-Championnière** (*Rev. de Chirurg.*, April 10, 1895) has also referred to the fact that children are sometimes extremely *intolerant of the usual antiseptic measures*.

*Not long since I saw in consultation a delicate child who had*

been affected in a different way by the application of, as I was informed, the ordinary wet dressings of carbolic lotion previous to the performance of an operation. In this case extensive gangrene followed the application.

It is well that attention should now and again be called to the fact that some children are intolerant of our "every day" drugs. Nor must it be forgotten that lotions of carbolic acid and of mercuric salts owe their antiseptic value to the fact of their being energetic chemical agents. But a child's skin or ulcerated surface is an active area of absorption.

### **3. Dermoid cysts of the occipital region.**

Walther (*Presse Méd.*, April 6, 1895, as quoted in the Epitome of the *British Medical Journal*, p. 73) relates a unique case lending important confirmation to the inclusion theory of the origin of dermoid cysts. The patient entered the Hôpital de la Pitié on February 3, 1893, under the care of Tillaux. About eight years earlier, in 1885, the man had first noticed a swelling in the occipital region. After a time he suffered from frequent "tearing" pains in the head, neck and shoulders, with tinglings. The cyst was removed. Ten days afterwards the patient appeared with a hæmatoma. The incision being reopened gave exit to blood, pus, and a substance resembling "white cheese." A fistula formed, from which came a thick liquid, mixed with sebaceous matter. From time to time the orifice healed and the swelling increased, this event being always signalled by aggravation of the symptoms. In January, 1889, a counter-opening was made and a drain inserted, through which injections of sublimate solutions were made to wash out the contents. In January, 1893, when the patient came under the care of Walther, there was a fistulous track at the level of the external occipital protuberance, leading to an intracranial pocket filled with foetid pus. As the cerebral symptoms had become more marked on February 10, 1893, an incision 16 cm. long was made across the fistula. A fibrous cord or prolongation of the tumour was found leading to an orifice in the occipital bone. The ultimate result was satisfactory.

A case in my own practice (which has not hitherto been published) was of a similar nature:—In March, 1892, an infant was brought because of a small, inflamed, firmly fixed, and tender swelling over the external occipital protuberance. At the same time a note was sent by the medical attendant asking that, if I thought right, I would incise the swelling, as its presence seriously disturbed the child. I regarded the little lump, however, as an inflamed dermoid, and replied that, as it might

not improbably have intracranial connections, incision would be hazardous. Shortly after this the swelling subsided, but the infant became comatose and died.

The report of the autopsy was promptly forwarded:—"We made an incision over the little lump. There was a trace of pus, and a hole about  $\frac{1}{8}$  inch in diameter was seen in the bony skull. On passing a probe, this seemed to extend downwards almost, if not quite, to the upper part of the spinal column. Pus oozed out of this opening. We cut the bone on either side and traced down the canal, which seemed formed in the dura mater. A little hair and sebaceous matter came out on pressure. Some of this, in a sac, I put in a little spirit, and am sending it to you. There were evidences of a considerable quantity of pus oozing out of the cavity: about 2 ounces. And with but slight pressure it was possible to force the little finger into an abscess cavity, at the base of the brain, the size of a Tangerine orange."

The specimen showed the small external dermoid communicating, by a slender stalk about 2 inches long, with a passage of the size of a No. 1 catheter running downwards and forwards from it. The intracranial part of the cyst contained hair and sebaceous matter.

The probability is that some slight injury set up inflammation of the extracranial part of the cyst, and that, by continuity of tissue, the inflammation extended into the cerebral envelopes and the brain itself, where it set up fatal suppuration. Such cases are rare; but surgeons who have studied Lannelongue's "*Affections Congénitales*," and Bland Sutton's excellent volume on "*Tumours, Innocent and Malignant*," would not be taken by surprise on encountering one of them.

#### **4. Latent tuberculosis of the three tonsils.**

Dieulafoy (*Bullet. de l'Acad. de Méd.*, May, 1895). The tonsil has been well called a "physiological wound"; certainly it is a pathway by which micro-organisms may easily enter the system. Enlarged tonsils and post-nasal growths, though not necessarily of tuberculous origin, are generally regarded with suspicion. *Noscitur a sociis*, and the company in which this lymphoid hypertrophy is encountered is, as a rule, of somewhat doubtful character, though it is no easy matter to demonstrate the bacilli of tuberculosis in the tissue after removal.

Dieulafoy remarks that the presence of the pharyngeal tuberculosis with which his communication deals is generally unsuspected until it is at last revealed by unmistakable *functional troubles*; "nevertheless it is sometimes the gateway of invasion of general tuberculosis or pulmonary phthisis."



The result of Dieulafoy's vivisection experiments with portions of adenoid growths sent to him by Cuvillier, of the Children's Hospital, is highly instructive. The sum and substance of the experiments is that, though the particles of growth might have been removed from apparently healthy children, their inoculation under the abdominal skin of guinea-pigs usually gave rise to tuberculous changes and to general tuberculosis.

In a volume which is specially devoted to treatment, the discussion of a matter of pathology must needs lead up to the practical issue as to how the disease under review had best be dealt with, and to this question we may content ourselves with replying that the sooner enlarged tonsils are amputated, and post-nasal growths are cleared away, the better.

### **5. The causation of acute non-tuberculous post-pharyngeal abscess in sucklings and young children.**

Henry Koplick (*Centralb. für Bakter. und Parasit.*, Sept. 26, 1894) has seen no fewer than sixty of these abscesses in seven years. Many of the children had apparently been in perfect health, though it is not unlikely that there had been some antecedent and unnoticed "sore throat." The chief symptoms of the disease are that the infant refuses the breast, and that its cry is changed. Inspection of the throat possibly shows a posterior swelling, though the introduction of the finger may be needed for recognition of the abscess.

In every case streptococci were found in abundance, and in one case the bacteria lactis were also discovered.

The chief lesson to be drawn from this paper is that, when an infant or young child refuses food and shows signs of dyspnoea, the attendant must not content himself with the mere inspection of the throat, but must make a careful exploration of the post-pharyngeal region with the finger, as the abscess is sometimes situated below the level of the tongue. It not infrequently happens that the child has suffered much before the cause has been detected.

In dealing with the subject of tuberculous post-pharyngeal abscess in the "Year-Book" of 1894, I urged that the pus might be voided by an aseptic opening through the side of the neck, but in these acute septic abscesses it may often be better to effect evacuation directly through the mouth.

### **6. Umbilical hernia in infants and young children.**

Cahier (*Revue de Chir.*, April, 1895) discusses the anatomy and treatment of exomphalos. He calls attention to the fact (which is often overlooked) that the protrusion is apt to cause considerable intestinal disturbances and vomiting. He has

something to say in favour of a flat pad being secured over the abdominal aperture in a young child, but he opines that if the hernia persists in spite of this treatment after the seventh year, operation for the radical cure may be, indeed is, justifiable.

Quoting Bichat, Cahier says that the older the child the greater is the task of establishing the cure. "With an infant of eighteen months it is easy, difficult in a subject of four years, and impossible with one of nine years." He further says that many authors recommend the application of the radical operation to every child with exomphalos, which strikes the English practitioner as extremely unsurgical; for, after all, umbilical hernia in a child usually means delayed development, which, with a little methodical help, time will remedy.

The radical treatment of umbilical hernia was also the subject of a clinical lecture at La Charité by Tillaux (*Sem. Méd.*, March 6, 1895), in which he described and illustrated a new method of operating designed by his house surgeon, M. Dauriac. It consisted in splitting a broad slip from the inner border of each rectus, cutting across the upper end of the slips and crossing the slips, like braces, at the site of the umbilicus, stitching the top of the left slip into the upper end of the gap in the right rectus, and the top of the right slip into the left rectus. The plan strikes me as being equally ingenious and superfluous. In my experience, if an umbilical hernia in a child happens to call for a radical operation, the simple one which is ordinarily adopted answers perfectly well, and leaves nothing to be desired.

### **7. Acute intussusception in children.**

In the last volume of the "Year-Book," I remarked that this disease had hitherto shown an extremely bad record; and I expressed the hope that brighter days were in store for these terrible cases. I wrote that one is now constantly seeing or hearing of reports of successful operations for intussusception, and that it was not unlikely that in due course the occurrence of the series of symptoms which indicated the disease would be considered as constituting a clear indication for passing the fingers into the peritoneal cavity. Further, that I looked forward to the time when every case of "intestinal obstruction" would be regarded as surgical, and, in hospital practice, would be sent, as a matter of course, into a surgical ward. The perusal of many recent reports of cases of intussusception in which relief has been sought by operative surgery has strengthened my conviction, and has induced me to *make further reference* to the subject in the present article.

*E. W. Roughton* (*Lancet*, Feb. 23, 1895) reports a case of

extreme interest in which recovery followed the treatment of intussusception by abdominal section in an infant of four months. I do not remember to have heard of the operation being successfully resorted to at so tender an age. But if the fourth month is not too early an age for an infant to be the subject of intussusception—and we know that it is not—neither is the subject of it too young to be afforded the comfort, or, at any rate, the benefit, of abdominal section.

*Case.*—The infant was admitted on Dec. 27th, 1893. On the previous day she had been seized with pain and vomiting, soon followed by the passage of blood *per rectum*. She was well nourished and not collapsed. The abdomen was not distended; in the left iliac region a fulness could be felt. *Per rectum* a soft, elastic mass could just be reached towards the left iliac region. Twenty-four hours after the onset of the symptoms, chloroform having been administered, the abdominal tumour could be distinctly felt. No attempt was made to reduce the intussusception by injection. The abdomen was opened in the middle line. On introducing the finger the mass was brought out at the wound; reduction was easily effected by kneading from below upwards. The invagination extended from the ileo-cæcal valve to the sigmoid flexure. Rapid recovery ensued.

Roughton remarked that he attributed the recovery to the early abdominal section without previous attempts at inflation or injection. He said truly that many cases of acute intussusception have been cured by injection, and it is quite possible that this case might have been cured by one of these methods. On the other hand, many cases have been killed, either directly by bursting the intestine, or indirectly by the waste of time entailed by unsuccessful attempts at reduction. The fatality of acute intussusception varied, he thought, directly as the length of time allowed to elapse before reduction is effected. He was of opinion that inflation should be discarded, that injection should be reserved for the very earliest cases, and that immediate operation should be performed in all cases of twenty-four hours' duration.

For my own part, I am not sure that success always depends only on the expedition with which laparotomy is resorted to. Early as well as late, the shock of the operation, in addition to that of the intussusception, is certain to be extreme, and must be held accountable for the comparatively poor results of operative treatment. I have operated early in these cases and I have operated late, and I grieve to say that it has never yet been my fortune to save a case. I am satisfied, however, that my good time will come. And, in the meanwhile, I think I may

without arrogance claim that my support of early and simple abdominal section is of all the more value in that I offer it in spite of my own failures in this direction. Were I able to adduce the report of even a single successful case in my own practice, it is not impossible that I might have been unduly influenced by it, and that my judgment might have yielded to enthusiasm. As it is, I remain but a spectator, as it were, of what I take to be an important evolution in the surgery of childhood; and if I cannot claim to be a calm spectator, I am at least satisfied to feel myself hopeful.

A short time since—I need not precisely say when or where—I was called to see a case of intussusception in a child who had been treated by a physician “in the usual way”—that is to say, the child had been given copious enemata by funnel and tubing, and had been duly manipulated from without. The intussusception remained, the abdomen was slightly distended, the child was collapsed, and the outlook was hopeless. I at once made a small incision in the right linea semilunaris, and, inserting my finger, found the intestinal sheath rent and the invaginated portion protruding through it. I need hardly say that the child quickly succumbed. Such a case is little likely to be recorded. Comparatively few practitioners are bold enough to bring forward their clinical failures for criticism. Hurry Fenwick, however, with praiseworthy honesty, records an instructive case, to which I have much pleasure in referring.

In the *British Medical Journal*, May 11, 1895, he gave the account of a male infant of six months with intussusception. The illness commenced with vomiting two days before, and the child had been sick ever since. There had been blood in the motions, and a little wind had passed. The child had attacks of screaming with quiet intervals. A sausage-like tumour could be felt in the left lumbar region. When the finger was introduced into the rectum a nipple-like body could be felt high up, the finger being smeared with blood and slime by the contact. Fenwick distended the colon with warm water, under chloroform. A small soft rectal tube, with funnel attached, was used. During the first distension the intussusception moved round from the left to the right lumbar region, and after the third it could no longer be felt there. Within a quarter of an hour the intussusception was again touched in the right iliac fossa. The child died after a convulsion an hour later. On opening the abdomen *post mortem*, a considerable quantity of grumous fluid was found in the peritoneal cavity. The intussusception, not fully reduced, was an

ileo-cæcal one. Peyer's patches were exceedingly prominent. An ulcer in the transverse colon was perforated and had allowed some of the injection to find its way into the peritoneal cavity.

**F. Eve** (*Brit. Med. Journ.*, Oct. 19, 1895) reported a successful case of laparotomy in a female infant of eleven months who was admitted May 29, 1895, at 4 p.m. The child was well until one hour before, when she was sick, and blood came from the back passage. She was at once placed under chloroform, and an injection of warm water was given. It was combined with manipulation of the abdomen, the intussusception being grasped in the hand and squeezed. The swelling gradually passed down to the right iliac region. But notwithstanding the exercise of very considerable force, a small lump remained. The abdomen was therefore opened in the middle line and a protrusion of the ileo-cæcal orifice was found. This was readily drawn out and the abdomen closed, the operation lasting only a few minutes. Immediately after the operation the temperature was  $96.5^{\circ}$ ; it rose steadily, reaching  $104^{\circ}$ . Convalescence was, however, interrupted. Eve directs attention to the well-known fact that recurrence is extremely liable to take place after apparent reduction of an intussusception by injection of water or of air. This recurrence is due, in the large class of ileo-cæcal intussusceptions, to the ileo-cæcal orifice still remaining slightly invaginated. He therefore insists that where an intussusception has apparently been reduced by injection the greatest pains should be taken to ascertain that the reduction has been complete, and that if any uncertainty exists on this point the abdomen should be opened at once. He also refers to a (fatal) case in which the temperature on the evening of the operation rose to  $105^{\circ}$ .

In a successful case recorded by **Barker** (*Brit. Med. Journ.*, vol. ii, 1894) in a child aged four years the temperature, also on the evening of the day of operation, rose to  $104.4^{\circ}$ , while in another fatal case in a child of five years it reached  $107.8^{\circ}$ . It may be inferred that the pyrexia in some instances is largely concerned in bringing about the fatal result. A rise of temperature after laparotomy should be anticipated, and directions given to reduce it by cold sponging and the application of ice to the head.

**T. Pickering Pick** (*Lancet*, Mar. 23, 1895) reports as follows:—  
“A well-nourished infant, one year of age, was admitted February 5, 1895. It had vomited three or four times. Twenty hours before admission blood was noticed in the motion. A mass could be felt in the rectum, extending down to the anus. Inflation of air was tried but produced no result. Warm water

was then tried, but as soon as the water flowed away the intussusception returned. A small incision was made below the umbilicus, of sufficient size to admit the finger and thumb, and the rectum was grasped below the intussusception and the mass pushed back through the whole length of the colon. The cæcum was now brought up to the wound in order to make sure that the ileo-cæcal valve was clear; its coats were thickened and infiltrated. At no period was any intestine allowed to escape from the abdominal cavity. Recovery was rapid and complete."

In the *Lancet* of March 2, 1895, Roughton gave his views upon the subject of operation in these cases, and supplemented them with a table of sixteen successful laparotomies for acute intussusception in infants, with their respective references.

"From this table it appears that the average duration of the symptoms in the successful cases was thirty-two hours; in no less than ten of the sixteen cases it was twenty-four hours or less, and in only three cases was it two days or more. These facts prove, as far as they can, that if laparotomy is to be attempted with reasonable chance of success, it must not be deferred longer than twenty-four hours from the onset of the disease. I think that the shock caused by abdominal section in these cases has been confounded with that produced by the disease itself, and by the previous attempts at reduction by inflation and injection."

This statement of opinion I cordially endorse; and, whilst doing so, I feel constrained to express regret that inflation and injection have ever proved efficacious in curing an acute intussusception. But for occasional reports of successful inflation, professional opinion would long since have solidly settled down in the line of recommending abdominal section as soon as ever intussusception was certainly diagnosed. In the direction of this desirable line opinion seems now to be successfully advancing.

### **8. The surgical treatment of idiocy.**

G. E. Shuttleworth (*Brit. Med. Journ.*, Sept. 28, 1895).—Cranietomy in microcephalus having been much referred to as serviceable in promoting brain development in that form of idiocy, it became necessary to examine the evidence upon which such an opinion rested. Tracing the history of the operation since 1890, Shuttleworth argued that the experience of five years did not sustain the sanguine expectations of early operators. As microcephalus was not, as a rule, dependent on premature synostosis, but on original faulty brain development, the operation was never a promising one; and though it was now contended in some cases a conflux of blood and consequent improved actions were produced by it, the after-history of cases

operated on some years ago did not show more mental improvement than would probably have occurred independently of the operations. **Bourneville** had demonstrated that such operations in the long run tended to diminish cranial capacity, as exuberant bone growth was apt to take place where bone had been excised. In cases of mental deficiency with pressure symptoms, however—as in traumatism and hemiplegic cases—there were good indications for operating. A remarkable case of syphilitic imbecility (inherited) with epileptic symptoms, much benefited by trephining, had lately been reported by Mr. Anderson, of St. Thomas's Hospital. Dr. Fletcher Beach was also of opinion that craniectomy is of no use in microcephalic idiocy; pathological anatomy has shown us that the theory on which it was originally based rarely exists.

**C. Beck** (*Centralb. für die gesam. Med.*, March 9, 1895) also concludes that the smallness of the skull in the microcephalic idiot is closely associated with, if not dependent upon, imperfect development of the central nervous system. But his essay is somewhat ambiguous.

**Sir Wm. Stokes** (Introductory Address to the session 1894-5, delivered at the Meath Hospital) spoke in a similar strain:—The deficiency of brain power in these cases was believed to be due to premature closing of the sutures, and, as a result of this, space was not given for a sufficient development and growth of the brain. To give room for the brain to develop it was proposed by Lannelongue to perform craniotomy. Lannelongue, in 1891, published a series of twenty-five cases of craniotomy performed on children from eight months to twelve years of age, when only one death occurred. The results were alleged to be most favourable, especially as regarded improvement in intelligence. In consequence of this, the operation was promptly repeated by various surgeons in Europe and America, but, alas! with very different results, and the suspicion became unavoidable that the continuance of such success was not to be counted on—in fact, that the colours in the original picture were of somewhat too roseate a tint.

**Jacobi**, at the International Congress in Rome, sounded a warning note. He pointed out how many-sided is the etiology of microcephalic idiocy, and that although insufficient cranial development may sometimes be a determining factor in arresting healthy brain growth, yet such a condition is but one out of many others that predispose to mental deficiency.

At the meeting of the German Surgical Society in Berlin, **Tillmanns**, of Leipzig, read a communication on craniectomy. He



is unfavourably disposed to the operation, on the ground that in microcephalic heads there is almost always a congenital malformation of the brain which is uninfluenced by any abnormality in the calvaria. These changes, as Fraser and other observers have pointed out, are not confined to the brain alone, but are found affecting the whole of the central nervous system—in truth, the developmental changes are so profound in the microcephalic condition that no closure of sutures, or opening of sutures, could influence them in any way. The sutures and fontanelles are, in Tillmanns's experience, normally developed in this condition.

Tillmanns concluded his address upon the subject at the last German Surgical Congress with the following cautious and cautioning remark :—"Nevertheless, one must be carefully on the look-out lest he fall into the error of exaggerating the results obtainable by this means of intervention."

**Sir G. M. Humphry** (*Jour. of Anat. and Phys.*, Jan., 1895), after giving a detailed account of the skull of the microcephalic idiot, writes :—"There is nothing in the specimens to suggest that the deficiency in the development of the skull was the leading feature in the deformity, and that the smallness of the bony cerebral envelope exerted a compressing or dwarfing influence upon the brain, or anything to give encouragement to the practice lately adopted in some instances of removal of a part of the bony case with the idea of affording more space and freedom for the growth of the brain. . . . The brain growth is the determining factor, and the skull grows upon and accommodates itself to the brain, whether the latter be large or small."

Craniectomy as an operation for the improvement of microcephalic idiots is dead. Its life was short and meteoric ; and to those who expected great things of it, it must have been sadly disappointing. Its biography should now be written by those who had the greatest personal acquaintance with it. What struck me most as an onlooker in this once fashionable surgical departure was the tolerance which the microcephalics evinced for the operation. The best that I can write for it, by way of epitaph, is that though the operation probably has done no good, it has done but little harm.

# DISEASES OF THE GENITO-URINARY SYSTEM.

BY REGINALD HARRISON, F.R.C.S.,

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## **1. Large pelvic hydatid treated by perineal incision and drainage.**

Reginald Harrison (*Trans. Med.-Chir. Soc.*, vol. lxxviii.) reports a case, and summarises the literature bearing upon the treatment of this form of the parasite. The condition of the patient was a very deplorable one, by reason of the escape of the contents of the bladder and lower bowel being greatly interfered with by an hydatid sac situated between these viscera, and containing about half a gallon of the usual constituents. The operation consisted in exposing the sac at its most dependent point by a perineal incision as for a lateral lithotomy, without, of course, opening the urethra or rectum. As the hydatid was situated below the reflection of the peritoneum forming the recto-vesical pouch, it was readily reached without entrenching upon the cavity of the peritoneum. The sac was then freely opened, and after being emptied of the amount of contents referred to, was washed out and a large perineal drainage-tube, as used after lithotomy, inserted. The patient made a complete recovery. This method of treatment was advocated in preference, more particularly, to a laparotomy, as being safer, and as affording a ready access for subsequent drainage. The patient had probably been infected some years previously whilst residing in Australia.

## **2. Rupture of the bladder, with remarks on the inflation test.**

Walsham (*Trans. Med.-Chir. Soc.*, vol. lxxviii.) reports a successful case treated by suture. After describing the details of the operation, it is observed, "This is the first case of ruptured bladder in which the inflation test has been employed." The adoption of this expedient appears to emanate from communications made by Morton (*Journ. Amer. Med. Assoc.*, Jan., 1890) and Keen (*Annals of Surgery*, 1890). Walsham observes: "In the

case under consideration the injection of a few cubic inches of air forced into the bladder by two or three contractions of the rubber hand-ball apparatus caused the whole abdomen immediately to become markedly distended. 'The insufflation of this small amount of air produced such an instantaneous alteration in the abdominal contour that no question existed in the minds of any present as to the bladder being ruptured.' It is interesting, further, to note that the introduction of gas into the abdominal cavity even in small quantity was attended by a profound disturbance of the patient's general condition, which was at once relieved on opening the abdomen.

In Walsham's case, the inflation test appears to have been resorted to for the reason that the evidence afforded by the previous injection of water was inconclusive. On the other hand, where the whole abdomen becomes rapidly and greatly tympanitic, as, for example, in cases where there has been delay in making the diagnosis, the inflation test might easily prove inoperative. Having regard to the widely different conditions under which cases of intra-peritoneal rupture of the bladder are presented, I think Walsham is right in concluding that both tests be applied, as with their combined aid the question of rupture in all doubtful cases may at once be set at rest.

### **3. Suprapubic lithotomy with bladder inflation.**

Heath (*Brit. Med. Journ.*, June 1, 1895) illustrates a method of procedure suggested by Keen, of Philadelphia, where the bladder was distended with air instead of with fluid as a preliminary to the incision, and the elevation of the viscera by a Petersen's rectal bag. He thus refers to certain advantages of this detail: "The air escapes easily, and there is no mess. There is also another consideration: if there is a sudden rush of water it may wash out with it a small calculus, which may get lost."

There is only one criticism I would offer on the substitution of air for water in cases of this kind. In cutting down on the bladder above the pubes, particularly in stout persons, most surgeons, I think, will do so the more confidently in the consciousness that the organ they are in search of, in the natural state of things, is certainly not tympanitic to the touch. In other respects inflation has some advantages.

### **4. Pouched calculi.**

Buckston Browne (*Brit. Med. Journ.*, Oct. 12, 1895) draws attention to a source of difficulty in connection with the detection of stone with the sound, and refers to instances where a calculus is held in a pouch or depression between a lateral enlargement of the prostate and the wall of the bladder. In searching for a

stone so situated the use of the lithotrite in a distended bladder with an elastic ligature round the penis is advocated; failing these measures, and having regard to the fact that such a stone may prove unseizable by a lithotrite, a suprapubic cystotomy is indicated. This communication may be taken as a continuation of a paper by Browne (*Trans. Med. Soc., London, 1891*) on the post-prostatic pouch. In the discussion following the reading of the first-mentioned paper, **Mayo Robson** referred to an instance where the stone lay in a post-prostatic pouch with a narrow neck, which had to be slit up before extraction by the suprapubic method was possible.

### **5. Lithotrites and evacuating catheters.**

**Reginald Harrison** (Post-Graduate Lecture, *Clinical Journal*, May 22, 1895) describes and illustrates some lithotrites and evacuating aspirator catheters which recently have been made for him. The lithotrite (Fig. 1, p. 264) is a fenestrated one, but differs from the usual form in having a short lever instead of a sliding button, by means of which, by the alternating pressure of the thumbs, the slide movement is converted into a screw when the fragment has been caught and is ready for breaking. A corkscrew handle has also been substituted for the more generally adopted wheel. The corkscrew handle in all respects compares favourably also with the ball handle, which was a feature in some of Bigelow's lithotrites. In small stones it really matters very little how the crushing force is applied, but in large ones, exceeding an ounce or so, this point is one of importance, not only from the patient's point of view, but from the surgeon's.

"Passing now to the evacuating catheters to which the aspirators for withdrawing the fragments are attached, it will be noted that those I use differ from others you may have seen. You will observe (Fig. 2, p. 264) that the eyes are larger, with their rims smoothly bevelled. There is also a very simple provision against any difficulty arising from the impaction of a fragment in the opening or in the tube itself. The surgeon should always have at hand a stylet, by means of which the tube can be quickly cleared. To remove a catheter with a sharp fragment projecting from the eye may be the means of inflicting serious damage on the urethra, and ought never to be attempted. To meet this I use a long copper probe fitted with a stop at the handle, and sufficiently pliable to adapt itself to the curve of the catheter. This probe can be used for any sized evacuator suited for an adult, and I prefer it to having each instrument exactly fitted with its own appliance. It only causes confusion to the surgeon, when operating, when a stylet is handed to him which will not

fit the catheter in use. A single probe of this kind answers every purpose.

"Though curved evacuating catheters are usually preferred, I

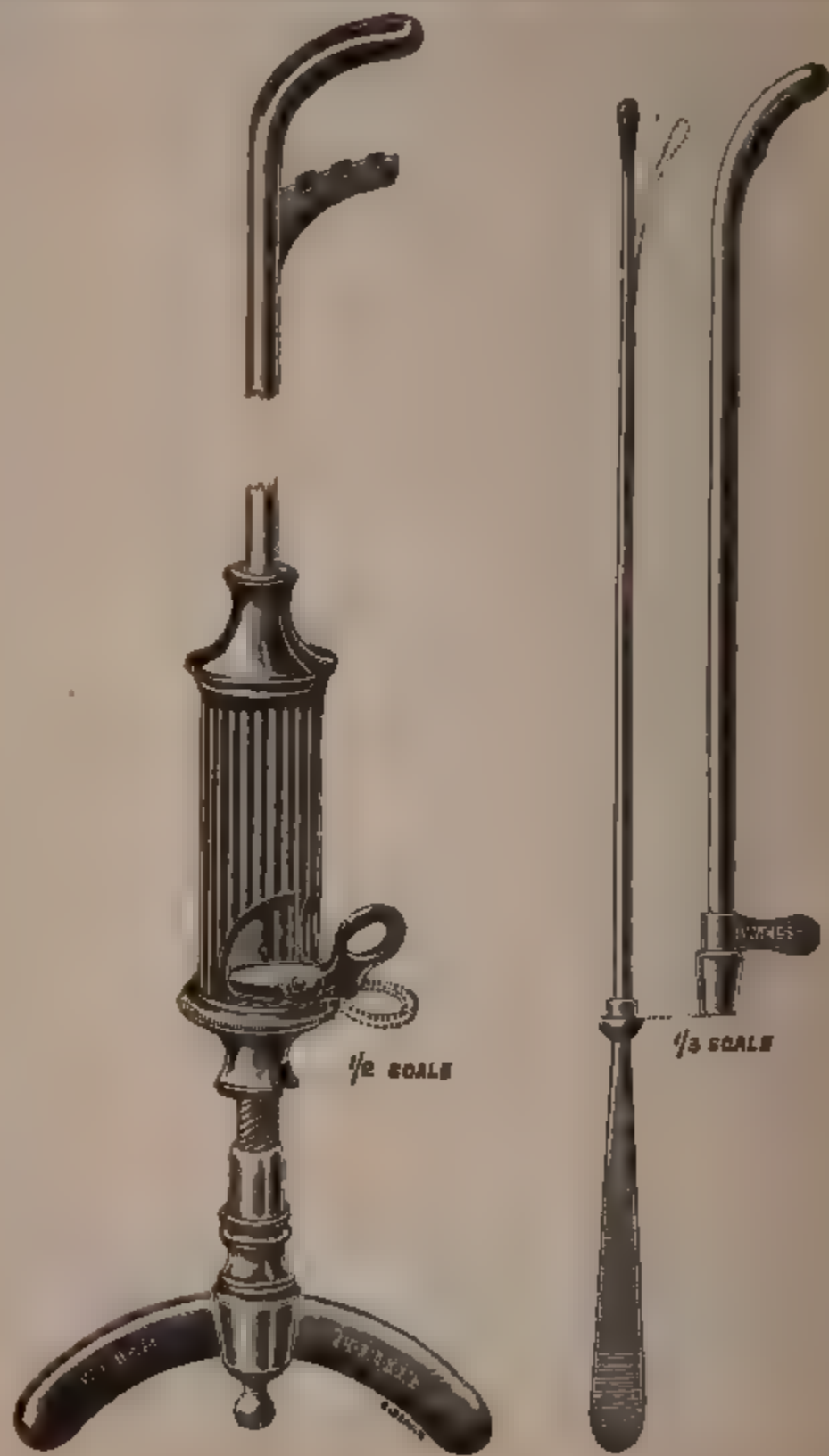


Fig. 1.

Fig. 2.

always have by me perfectly straight instruments. In some instances where the prostate is large the latter evacuate much more rapidly. When the patient is under an anæsthetic and the gland thus becomes less prominent, they are quite easily introduced. I generally saw Bigelow use one."

The modifications described in these lithotrites and evacuating catheters have been adopted by me after extended trials, in circumstances which are not likely often to occur in practice, with the view of facilitating the modern operation of litholapaxy, and thereby extending the range of its application by materially reducing the time occupied in its performance. When this can be done without sacrifice of safety it is a desirable object, in all surgical procedures, to aim at. It makes all the difference to a feeble old man, who has long been the subject of a urinary disorder, whether the operation will occupy half an hour, or an hour, or even more. There is probably no surgical mechanism that requires a more intelligent use than a lithotrite, and when the means of utilising its power are added to, such an addition must be duly allowed for in the practical application of the instrument.

#### **6. Operations upon vesical tumours.**

**Hurry Fenwick** (*Brit. Med. Journ.*, Oct. 12, 1895) considers that the results obtained by him in operating upon seventy tumours of the urinary bladder amply justify the advice that an intelligent electric cystoscopy should be made in all cases where there is reason to suspect a benign vesical growth. The examination in each case which he records determined the presence, the position, and the character of the tumour, and indicated the propriety of attempting its removal. These seventy cases include recurrences. Five deaths are recorded, two as the direct result of the operation early in the series. Three deaths occurred in carcinomatous patients at or about the third week after the operation. He submits that some benign tumours are better left alone. Thus, small sessile patches of villous growth in the male are often very slow to increase in size, unless they are irritated. As years go by they grow denser, and may not bleed at all. The mere fact of finding a sessile villous papilloma on the posterior wall of the bladder of a young male is not an indication for its removal. This can only be determined by the loss of blood.

He advises that when a benign growth is suspected the cystoscope should be used in a period of calm, between the attacks of hæmaturia, and that the bladder be full of urine at the time of the examination. In all cases of benign growth, if the bladder has not been meddled with, the urine in these intervals will be found quite clear, and the tumours will be exhibited to their best

advantage. It is much to the patient's advantage if the operation for removal be undertaken coincidently with the cystoscopy. It is advisable in every case of sessile pedicled growth to remove the base cleanly, either by cutting or crushing and cutting. It is believed that the pinching or squeezing of the healthy mucous membrane in the neighbourhood of the tumour fosters the appearance of growths in the traumatised areas. As regards malignant growths, Fenwick considers that the hard, slow-growing, single button of carcinoma can be removed with a fair prospect of favouring delay in the course of the disease, provided the base and the submucous tissue beneath the tumour be removed with the knife.

Malignant growths situated on or near the trigone do not repay removal, and always resent interference. If they obstruct, they had better be treated by suprapubic drainage. All infiltrating growths can be detected by rectal or bimanual examination under ether. Multiple or "contact" growths, as discovered by the cystoscope, are inoperable. Small, single, indolent, malignant growths may be removed even when they have so far advanced as to become glued to the muscle coat, provided the entire thickness of the subjacent bladder-wall be resected with them. This is, of course, only possible in the anterior, lateral, or posterior wall of the middle and upper zones. When the peritoneum is included in the ablation, free drainage of the bladder must be maintained in order to afford the bladder wound time to heal.

### **7. Castration, and its equivalents, in the treatment of hypertrophy of the prostate.**

In reviewing this subject, which during the past twelve months has continued to attract considerable attention, the following conclusions are drawn by **Montgomery** (*Med. Chron.*, Sept., 1895) from the consideration of White's paper (*Annals of Surgery*, July, 1895): "(1) The theoretical objections urged against double castration have been fully negatived by clinical experience, which shows that in approximately 87·2 per cent. rapid atrophy of prostatic enlargement follows the operation; that cystitis is relieved (52 per cent.); that vesical contractility returns (66 per cent.); and that there is a return to almost normal conditions (46·4 per cent.). (2) That in patients operated upon under surgically favourable conditions—*i.e.* before the onset of uræmia, or before the kidneys have become disorganised—the mortality was 7·1 per cent. Even of the desperate cases, 15 (75 per cent.) showed improvement of symptoms or marked atrophy of the prostate before death. (3) That castration gives better results than perineal prostatotomy or than suprapubic prostatectomy.



(4) That in some cases unilateral castration may be followed by unilateral atrophy of the prostate. (5) Division or ligature of both vasa deferentia in dogs causes marked loss of weight in the prostate. The absence of corresponding testicular change points to the possibility of this being the result of injury to some other part of the cord. (6) Ligation of the vascular constituents of the cord produces atrophy of the prostate, but only after first causing disorganisation of the testes."

In the discussion of the whole subject, which has thus been summarised, I hardly think sufficient prominence has been given to the effects on the testicles following section of the vasa deferentia, and more remotely upon the prostate. This is an important aspect of the question, as the subcutaneous division of these tubes is a slight proceeding compared with the operation of double castration, whilst if it fails there is still an alternative open. Evidence is already accumulating in favour of the minor proceeding, which may briefly be referred to.

**Pavone** (*Brit. Med. Journ.*, July 5, 1895) "finds that bilateral excision of the vas deferens in dogs brings about the same atrophy of the prostate as castration."

**Isnardi** (*Centralblatt für Chir.*, No. 28, 1895, and *Quart. Med. Journ.*, Oct., 1895) reports two cases of division of the vasa deferentia. In the first, a necropsy showed that the enlargement of the prostate was due to cancer. In the second, the prostatic hypertrophy occurred in a man, seventy-two years of age, in whom other methods of treatment had proved ineffectual. The vasa were divided on May 1, 1895. Six weeks afterwards the patient was shown at the Academy of Medicine fully cured, when it was stated that he could now hold his water for seven hours during the night, the prostate could hardly be felt from the rectum, and the urine, which was previously purulent and mixed with blood, was clear and normal. Atrophy of the testis has followed certain injuries where the vas deferens was probably involved. For instance, in his article on rupture of these tubes (*Holmes: System of Surgery*, vol. ii., 1870), **Birkett** quotes two cases of this kind where atrophy of the testis on the same side rapidly followed. In one it is stated that after this injury the testicle of a man aged twenty-five assumed the size of that of a boy of twelve, whilst in the other it is recorded that the shrinkage represented about one-half the size of the opposite one. Further reference is here made to a case dissected by **Hilton**, "in which he accidentally found one testis excessively atrophied, and the vas deferens of the same gland ruptured and closed at both ends. The ends were at least two

inches apart." Though it is stated in the last instance that the vesicula seminalis on the "same side was smaller than that on the opposite," no reference is made to the prostate in any of these cases. Possibly it was not carefully examined, as in two the injuries appear to have occurred in young subjects, whilst the age of the third is not stated.

Here, undoubtedly, is some useful collateral evidence, upon which further action may properly be based. It should also be remembered that instances occasionally occur where rapid atrophy of the testis has followed the accidental division or strangulation of the corresponding vas deferens, as in operating for varicocele. I remember seeing one case in consequence of serious legal complications arising, and the circumstances in which Delpech lost his life will naturally recur to us in connection with these remarks. In the case referred to by White (*Brit. Med. Journ.*, Sept. 23, 1893), where I operated in this way for prostatic hypertrophy, "as a compromise," the patient, a man about seventy years of age, desired me to castrate him for his urinary troubles, alleging that they were due to sexual excitements, which, at his time of life, should be ended. I divided the vasa subcutaneously just below the groins. He certainly was alive and well six years afterwards. The operation is extremely simple, and, in its freedom from danger, deserves a more extended trial. In the meantime, whatever operation is selected, care should be taken to confine the cases as much as possible to instances of purely obstructing prostatic hypertrophy. Tuberculous and carcinomatous prostates are not likely to be benefited, and their inclusion amongst those operated upon in these ways will certainly tend to prejudice a mode of treatment which has already shown itself to be of considerable value in properly selected cases.

#### **S. Treatment of cystitis and prostatitis.**

Allen, of Boston, U.S.A. (*Journ. Cut. and Gen.-Urin. Dis.*, April, 1895), advocates the use of a solution of permanganate of potash in cystitis and chronic prostatitis. He uses a syringe holding about 5 ounces, and a soft catheter, continuing the injections till the fluid flows out as it went in. He commences with a solution of 1 to 4,000. This he uses at intervals of from four to six days, increasing the strength to 1 to 2,000. He has found this treatment a mild and safe one, though more troublesome to carry out than the instillation of silver nitrate. Where the permanganate fails, the latter often succeeds, and conversely.

# DISEASES OF THE RECTUM.

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## **1. The surgery of the rectum.**

A paper on this subject was read before the Harveian Society by **Bernard Pitts** (*Brit. Med. Jour.*, 1895, vol. i., p. 1096), and a discussion followed. The free removal of cicatricial tissue in chronic anal fissure and uncomplicated fistulæ was recommended. Interference with fistulæ of tuberculous origin was to be discountenanced, unless removal of all the affected tissue was proposed. For internal piles, the ligature was to be preferred in most cases; but Whitehead's method was strongly advocated when the whole circumference of the bowel was involved. Owen agreed with Pitts in condemning wholesale resort to inguinal colotomy in cancer of rectum. Allingham disapproved of Whitehead's operation, as likely to cause anal stricture, besides other drawbacks. He agreed that palliative measures often rendered colotomy unnecessary for perhaps three or four years.

## **2. Prolapse of the rectum.**

For advanced cases of rectal prolapse, **Kammerer** recommends (*Annals of Surgery*, Jan., 1895, p. 45) Roberts's modification of Dieffenbach's operation, consisting in excision of a triangular piece of the posterior rectal wall, including the external sphincter. He had thus operated upon a woman with rectal prolapse to the extent of four inches, and complete prolapse of the uterus. The entire hand could be introduced into the rectum. He excised about four inches of the latter, and performed ventral fixation of the prolapsed uterus and a plastic operation on the vagina. Some months afterwards there was no indication of any recurrence of the rectal prolapse, and the uterus was also in excellent position, in spite of the fact that the patient had been for some time actively employed as a cook.

## **3. Resection of the rectum for prolapsus.**

**Bogdanik**, of Biala, recommends (*Annals of Surgery*, Jan., 1895, p. 121) for the treatment of severe prolapsus recti the

resection which was first performed by **Auffret** (*Progrès Méd.*, 1882, No. 34). The operation is performed as follows: The intestine should be thoroughly emptied by laxatives and enema, and a dose of laudanum should be given just before the operation. The patient is placed in the lithotomy position, and the apex of the tumour grasped with forceps in the hands of an assistant. The left index finger of the surgeon is passed into the thoroughly cleansed bowel, and an incision carried about the prolapsus one or two centimetres from the anal border. If there are evidently no contents between the outer tube thus cut into and the inner, the two are united by interrupted sutures applied between the wound and the anal orifice or border. An assistant holds one end of the threads, while the outer and inner intestinal tubes are united by means of the other, until the whole ring is surrounded. Before each needle-puncture is made, the wound in the outer tube is widened, so that after the suture has been completed, the outer tube is separated circularly. The hæmorrhage is only slight. The inner tube is now cut off at the level of the incised wound, and the mucous membrane of the two tubes is united by a continuous suture. The forceps are then loosened, and the stump of the rectum slips back into its place. An iodoform and opium suppository is introduced, and the buttocks are fixed with a firm adhesive strap.

#### **4. Two cases of rectal disease treated by modified operative methods.**

**G. H. Makins** (*Brit. Med. Jour.*, 1895, vol. i., p. 191) records a case of recto-urethral fistula of sixteen years' standing, resulting from lateral lithotomy. The opening in the rectum was about  $1\frac{1}{2}$  inch from the anus. An operation was performed as follows:—The patient, being in the lithotomy position, an H-shaped incision was made, the horizontal arm being two inches in length, and about 1 inch anterior to the anal margin. Each vertical limb was about  $1\frac{1}{2}$  inch in length. By careful dissection with the scissors, the communication between the urethra and bowel was reached. It had the usual sharp ridged margins, around which a circular incision was next carried, and the urethral mucous membrane dissected up for half an inch on each side. **Lembert's** stitches were passed on the raw surface of the flaps, and the mucous membrane was turned in towards a catheter placed in the urethra. The rectal wall was next separated from the back of the prostate; the fistulous opening was continued down to the anus, dividing both sphincters. *Lembert's* sutures were employed on the raw surface of the *bowel flaps*. A conical wound still existed between the canals;

this was closed with deep silkworm-gut sutures, as in Tait's ruptured perineum operation. With the exception of profuse hæmorrhage from the rectum,  $2\frac{1}{2}$  hours after the operation, the case did well, and on the nineteenth day all the urine was passed by the urethra.

In the second case, one of benign adenoma occupying an area of 2 by  $2\frac{1}{2}$  inches on the anterior wall of the rectum, the first part of the operation was similar to that performed by Mr. Whitehead for hæmorrhoids. Subsequently the sphincters were divided towards the vaginal wall, the muscular and cellular coats of the bowel divided by a circular incision, and the dissection was carried upwards above the limit of the attachment of the growth. The freed portion was then divided, and the bowel brought down and fastened to the cut margin of the anal skin. The perineal incision was closed with two sutures.

### **5. Syphilitic stricture of the rectum.**

Hartmann and Toupet (*Sem. Méd.*, 1895, p. 129) admit that some cases of so-called syphilitic stricture of the rectum are directly dependent upon a local specific lesion. Tuberculous ulceration sometimes coexists. More often the stricture is due to a cicatrising rectitis, the infectious process having involved the submucous tissues. Excision of the stricture may prove successful in congenital cases and in those in which a distinct cicatricial band is present; but when these conditions are absent, complete recovery is hardly to be looked for. There is always a tendency to recurrence, and to the continuance of more or less discharge, and these results are due to the persistence of the rectitis.

### **6. Syphilitic ulceration and some other diseases of the rectum.**

Under this heading Warrington Haward describes several cases of syphilis of the rectum (*Lancet*, 1895, vol. i., 1495), and gives full details of the treatment. This must be constitutional as well as local. Mercury is almost always necessary, and may generally be combined with iron and other tonics. In later stages, the iodide of potassium should be substituted for the mercury. As a rule mercury with chalk, and especially if combined with compound ipecacuanha powder, is well tolerated; but if digestion be affected, inunction or the calomel bath should be tried. To regulate the action of the bowels, salad oil should be given with vegetable food, or in a single dose at bedtime. The diet should be nutritious and easily digestible. By way of local treatment, the bowel should frequently be washed out with a warm solution of the permanganate, and this should be

followed by a suppository of iodoform, or grey oxide of mercury (3j to ʒj).

### 7. Some points in the technique of resection of the rectum.

Under this heading, **Kammerer**, of New York, gives his experience of the operation (*Annals of Surgery*, Jan., 1895, p. 1). He recommends a preliminary colotomy, following **Maydl's** method with but slight modifications. To support the gut and prevent retraction he uses a glass rod, covered with iodoform gauze, passed through a small hole in the mesentery. The temporary artificial anus prevents contamination of the wound-surfaces during the operation, and enables irrigation from the rectum to be thoroughly carried out. Moreover, the temporary provision for the passage of fæces insures union of the sutured bowel. In all his cases **Kammerer** has incised the peritoneal cavity in **Douglas's** pouch, even when the removed portion of the rectum has not measured more than three inches. He disapproves of stripping off the peritoneal investment from the upper part of the rectum, as recommended by **Bardenheuer**. It is difficult to loosen the upper end of the rectum and the lower part of the sigmoid flexure extra-peritoneally to such an extent as to admit of approximation of the resected ends. The sphincter should never be sacrificed unless absolutely necessary.

*Kraske's operation.*—At a meeting of the Medical Society of London, **Swinford Edwards** showed two cases (*Brit. Med. Jour.*, 1895, vol. i., p. 366), in one of which close upon five inches of the bowel had been removed with the coccyx, while in the other the attachments of the sacro-sciatic ligaments on the left side were divided, and a portion of the sacrum removed with the coccyx. The severed ends of the bowel were approximated with a **Murphy's** button in end-to-end anastomosis. The patient did well, and had gained three stone in weight. **Clutton** recommended a free incision beside the coccyx from the anus, dividing all the tissues, free opening of the peritoneum, pulling down the sigmoid flexure or rectum, and removal of the diseased portion. He regarded **Kraske's** operation as unnecessary in women.

*A special method of operation.*—**F. T. Heuston**, of Dublin, reports (*Brit. Med. Jour.*, 1895, vol. i., p. 1141) two cases of excision of the rectum for malignant disease, and points out that the great objection to the operation by the usual method is the subsequent incontinence of fæces caused by the removal of the sphincters. This drawback is obviated in his plan, the details of which are as follows: An incision is made in the median line from the anus to the tip of the coccyx, dividing the attachment of the

external sphincter and levator ani muscles to the ano-coccygeal ligament. The rectum is next separated from the surrounding connective tissue, and clip-forceps applied to it at the commencement of the ampulla, below which the bowel is divided; the attachments of the levator and sphincter are thus not interfered with. The rectum is now drawn downwards and backwards through the median incision; clip-forceps are applied above the diseased portion, which is removed by scissors. The upper portion of the bowel is now fixed by deep sutures, about an inch above its cut extremity to the recto-vesical fascia and levator ani, thus closing the space between the latter and the peritoneum. The mucous coat of the bowel should not be penetrated. A second row of sutures is now applied between the cut extremity of the bowel and the portion originally left below, these sutures penetrating the entire thickness of the bowel in both instances. The upper row of sutures prevents the second set from tearing through. The incision from the anus to the coccyx is now closed; the most anterior suture including the posterior aspect of the bowel, but not penetrating the mucous coat. It is claimed that this operation will suffice for the removal of cancerous growths involving the middle and lower third of the bowel.

*A new rectal truss.*—F. T. Paul, of Liverpool (*British Med. Jour.*, 1895, vol. i., p. 519), holds that the most extensive operations upon the rectum for cancer are in every way more hopeful than those performed for much less advanced disease in the mouth. He divides his cases into four classes:—(1) Carcinoma of the lower end of the bowel, all within easy reach of the finger; (2) growths which have commenced high up, but are, or have come down to be, within reach of the finger; (3) extensive growths, commencing low down, but the limits of which cannot be defined; (4) growths too high up to be recognised without laparotomy. For cases belonging to Classes 2 and 3, Kraske's operation, or modifications thereof, yield good results, shock mainly due to hæmorrhage being the chief danger connected with the operation. In the fourteen cases two deaths occurred directly from the operation. Of the twelve who recovered, six died subsequently from recurrence of the growths, the average period of life after operation being one year and eight months. In the cases still alive, the interval since the operations amounted on the average to nearly four years. In order to prevent prolapsus and retain the fæces, Paul has devised a rectal truss, the special feature of which is that counter-pressure is obtained by continuing the spring supporting the rectal pad above the waist-belt to end in a circular pad in contact with the base of the spine.



The rectal pad is made to a cast of the orifice, and is covered with indiarubber. It is now manufactured by Messrs. Down Brothers, of St. Thomas's Street, S.E.

### **8. Results of excision of the rectum.**

1. **Micheli** gives short notes (*Rif. Med.*, Feb. 23, 1895) of nineteen cases of excision of the rectum for cancer occurring in Von Bergmann's wards. The cases were distinguished by the absence of post-operative inflammation in the peri-rectal tissues, this advantage being attributed to the method adopted. The patient being in the lithotomy position, a horizontal incision is carried down to the bone over the sacrum at the level of the third foramen, and at the extremities of this two incisions are carried downwards towards the anus, becoming less deep as they approach the aperture. The bone is then divided and the osteo-cutaneous flap raised. After removing the diseased portion, a circular suture is used in all cases where the ends of the bowel can be approximated without undue stretching. Even if some point of the posterior suture gives way during the first defæcation, no great harm results, as the wound by that time is in a granulating condition. The patient lies on his side for the first week after the operation, and the osteo-cutaneous flap is gradually adjusted. The advantages claimed for the operation are—comparatively slight interference with nerves, shape of perineum unaltered, fixed point of insertion of anal sphincter retained, and ease with which fistulous tracks generally close.

2. **J. E. Platt** has followed up the history in twenty-one cases (*Med. Chronicle*, Sept., 1894, p. 419) operated upon by the surgeons of the Manchester Royal Infirmary. The mortality averaged 14·3 per cent., including two cases in which the operation was not completed. Seven have since died of recurrence, and five more exhibit evidence of return of the disease. Five patients continue well, two years being the longest interval since the operation. In operating, the peritoneum was opened five times, with one death. Statistics show that this complication does not greatly affect the result, provided sutures be applied at once. Fastening the bowel to the skin is to be recommended wherever practicable; there is some chance of primary union. In the ordinary operation English surgeons do not, as a rule, attempt to remove more than the lower four inches of the rectum. A greater length can be excised by the sacral operations, but the peritoneal cavity is opened and the pelvic floor is weakened. As compared with the improved method of performing colotomy, *the mortality attendant upon excision is high; but the latter operation gives a chance of absolute cure and an almost certain*

prolongation of life. Such sequelæ as prolapse, stricture, and incontinence are sometimes observed. The first two are rare, and incontinence does not prove to be so troublesome as might be expected, a certain amount of control being gained over solid motions.

#### **9. Vaginal resection of the rectum.**

**Rehn** states (*Centralbl. f. Chir.*, No. 10, 1895) that in cancer of the rectum in women the diseased portion may be readily removed through a vertical incision made in the middle line of the posterior wall of the vagina, and carried backwards in the perineum as far as the external sphincter ani. The incision into the vagina permits of free removal of a large malignant growth and facilitates the separation of the diseased mass. In the first stage of the operation the rectum is plugged with antiseptic gauze, the vagina thoroughly disinfected, and the posterior wall incised and separated from the diseased gut. The perineum is next incised, and the rectum below the disease is isolated, ligatured, and divided. The upper portion is next drawn through the vaginal wound and excised. Hæmorrhage, which is comparatively slight, is dealt with in the usual way.

# VENEREAL DISEASES.

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## **I. Intravenous injections of mercurial solutions in syphilis.**

This method of treatment, to which allusion was made in the "Year-Book of Treatment" for 1895, p. 309, has found some adherents during the past year, whose opinions are worthy of record. W. L. Pyle, of Washington (*Philadelphia Med. News*, Feb. 23, 1895), gives a clear account of the technique and of the results of this method so far obtained. The fluid suggested by Baccelli for the purpose consisted of perchloride of mercury, 1 part ; chloride of sodium, 3 parts ; and water, 1,000 parts. It was advisable but not necessary to sterilise it, not only with the view of rendering it perfectly aseptic, but also to facilitate its solution. A ligature should be applied above the elbow, and any one of the superficial veins in the neighbourhood might be selected as the point for injection ; the surrounding skin was to be rendered thoroughly aseptic by the usual means, and the needle previously sterilised was to be thrust through the skin into the cavity of the vein, entrance into which was rendered certain by the escape of a few drops of blood ; the syringe was then attached to the needle, the ligating band was loosened, and one gramme of the solution was introduced into the circulation, a dose which might be progressively increased to 4 grammes. Baccelli had reported three cases in which marked improvement had followed his treatment. One was a severe case of cerebral syphilis with total blindness, in which all previous treatment had been ineffectual ; intravenous injections commencing with one gramme, and increasing to five times that amount, were followed by complete disappearance of all cerebral symptoms and improvement in vision ; in all, twenty-eight injections were administered. Gemma, of Genoa, had also had four cases, including two of cerebral syphilis, in which marked *amelioration* had resulted from the treatment, while many other cases had been reported by Italian physicians. Among the

advantages claimed for the method were: (1) There was absolute certainty of absorption; (2) the absence of pain; (3) there was no disturbance of the digestive tract; (4) there was more rapid absorption and consequent therapeutic effect than by any other means; (5) less of the mercurial salt was required, and exactitude of dosage was ensured; (6) it was perfectly safe and reliable; (7) there was no subsequent abscess formation or cutaneous irritation; (8) it was successful after all other methods had failed. Amongst its disadvantages were the possibility of not entering the channel of the vein, slight extravasation into the subcutaneous tissue, transitory albuminuria and polyuria, and slight stomatitis. The author considered it of especial value in obstinate cases which had resisted other plans of treatment, or in advanced cases of organic syphilis, or when immediate relief was urgently called for by reason of pain, encroachment on a vital part, or rapid destruction of tissue. Investigation might prove it to be most valuable immediately after the diagnosis was made by its eliminating or destroying the syphilitic virus before it had produced any decided effects on the general system. At present there was no evidence to warrant this statement, but as the method was virtually devoid of dangerous or untoward results, it should be given some trial. Viewing the brilliant results in the cases reported, it would seem that this method was a most valuable one, and one which, in the hands of careful practitioners, would render all forms of the disease readily curable.

Abadie, in a communication to the French Society of Dermatology and Syphilography, deprecated the plan of withholding the administration of mercury till the appearance of some of the phenomena of secondary syphilis, and recommended that mercurial treatment should be commenced when the initial lesion only was present (*Bulletin de la Soc. Franç. de Dermat. et de Syphilig.*, April, 1895). [Like many others, Abadie seems to ignore the fact that, in a vast number of cases, a diagnosis is impossible until the appearance of some secondary lesions, and that many sores in which induration is markedly present prove themselves by the lapse of time to be non-syphilitic. Since Abadie is engaged in ophthalmic practice it is possible that he is not familiar with the disease in its incipient stage.] Abadie condemned the treatment by pills and other mercurial preparations administered by the mouth, and was in favour of inunction or intramuscular injection, or in grave and obstinate cases intravenous injections. He had adopted this plan in many cases, and had never met with an accident worthy of record. He gave a demonstration of this plan of treatment to the above-mentioned society.

His technique is almost identical with that described in the preceding paper; he used one gramme of a 1 per cent. solution of either the perchloride or the cyanide of mercury. In making the puncture it was easy to distinguish the sense of non-resistance when the cavity of the vein was entered, and this sense would indicate that the needle was not in the cellular tissue. The injections were made every other day for twenty days, then an interval of fifteen days was allowed; then another series of the same duration was recommenced, to be followed by an intermission as before, and so the plan was continued until there was no further indication for treatment. The injections required considerable caution on the part of the surgeon, who must render the selected surface of the forearm thoroughly aseptic, must carefully sterilise the syringe, and must guard against the introduction of air into the vein; still they were far better borne than intramuscular injections; they gave rise to no pain, were followed by no inflammatory induration, and lastly, and most important, they were undoubtedly more efficacious.

Bruni (*Il Policlinico*, May 11, 1895) relates a case of cerebral syphilis accompanied with convulsions, and diagnosed as being due to a gumma in the left Rolandic area. As no improvement followed on treatment by intramuscular injections and iodide of potassium, intravenous injections were resorted to. Three milligrammes of perchloride of mercury in solution were injected daily, and the dose was gradually increased up to 6 milligrammes, sixteen injections in all being administered. The fits and headache were cured by the first injection, and subsequently the improvement was maintained. Bruni advocates this plan of treatment when other kinds of mercurial treatment had proved ineffectual in severe cases of cerebral syphilis, and in those who are unable to take large doses of mercury by the mouth.

Görl (*Münch. med. Woch.*, May 14, 1895) describes nine cases of syphilis treated by this method; the solution employed was perchloride of mercury 1 ad 1,000, of which 2 to 5 centigrammes were injected every second or third day. He considers that if any pain follows the injection, it is due to the escape of the fluid into the connective tissue, and indicates that the needle has not been properly introduced. The advantages were the minute dose, the rapidity of cure, and absence of danger, while the most serious objection in the author's opinion was *the possibility of relapses*. He would use the intravenous method *only when intramuscular injections set up intolerable pain, or when inunction and administration by the mouth were*

impossible. Besides the indications for this plan alluded to by previous writers, he advocated its use in tuberculous subjects.

At the Dermatological Society of Vienna a discussion was held on this subject (*Wien. med. Presse*, 1894, p. 1777), at which **Neumann** announced that for some time past he had adopted this plan; if the injections were employed every day, he found some difficulty in selecting a site for their use. He had on more than one occasion seen some periphlebitic thickening pointing to mild phlebitis. He had tried paravenous in contradistinction to intravenous injections, with the idea that by a species of endosmosis, or exchange of salts, a sufficient amount of mercury might make its way into the blood. He had treated eighteen cases, and in some had met with very rapid success.

**Kaposi** considered that we ought not to adopt a method the results of which differed in no way from those obtained by other plans of treatment, but in which the dangers could not possibly be foreseen. He had no objection to the paravenous injections, for they were identical with the hypodermic plan of treatment.

**Lang** thought that judgment on intravenous injections should be suspended, as at present they were only on trial. He maintained that the injections, whether intravenous or paravenous, in some instances produced the most extraordinary results, while in others they were inefficacious.

**Kusel** of Moscow (*Ann. de Derm. et de Syph.*, July, 1895) had made a series of injections in the clinic of Prof. Pospeloff, using every possible antiseptic precaution, and employing a syringe with a fine and short needle. If the injection was made into the vein, no pain ensued. On the contrary, if the liquid was injected into the surrounding cellular tissue, it gave rise to an extremely painful nodosity, which was slowly absorbed. The results were, with one solitary exception, most favourable, and the local manifestations of the disease invariably disappeared, even though very weak mercurial solutions were employed.

## 2. Serotherapy in syphilis.

**Gilbert and Fournier** (*Sem. Méd.*, April 27, 1895), after tracing this method from its inception, are led to the conclusion that the results of serotherapy in syphilis are at the present time somewhat indefinite. The natural immunity of animals against syphilis led to the hope that the injection of serum from these animals would lead to a cure in the human being. This treatment was first practised by Fournier with serum provided by **Richet and Héricourt**, and was subsequently employed by

Tommasoli, Mazza, and Kollman, who utilised the blood of sheep, calves, lambs, and rabbits; the results were moderate, with the exception of Kollman's, which were negative. The advantages manifested by its employment were an improvement in the general health, diminution of anæmia, return of strength, and more rapid cicatrisation of syphilitic ulcers, especially when other anti-syphilitic treatment was used concurrently. Nevertheless, inquiries into the results of the treatment proved that it did not modify the disease, and that it did not diminish the intensity of the later manifestations. A proceeding recommended by Pellizzari for the treatment of syphilis in its early stages was by the injection of serum from old syphilitic subjects, and even from those more recently infected. The results, however, were not very encouraging, for even if the manifestations present were diminished in intensity, the disease continued its regular evolution. Another plan was to immunise strongly an animal against the disease, and to employ his serum on those suffering from that disease. There was quite a possibility of conferring on animals refractory to syphilis a further immunising or even curative power. With the view of reinforcing by experimental inoculation the natural immunity of animals, Héricourt and Triboulet injected them with the blood taken from syphilitic subjects in the roseolar stage, and some days subsequently bled the animals and collected the serum. At the outset, the authors adopted Pellizzari's method, taking the serum from one subject with syphilitic tabes, and from another with gummata, and utilising it on a patient with two infecting chancres, double inguinal adenopathy, general maculopapular syphilide, severe nocturnal headache, osseous and articular pains and general fever and anæmia. They injected in twenty days 304 cubic centimetres—i.e. about ten ounces, in doses varying from 25 to 45 cubic centimetres (7 to 12 drachms), using doses largely exceeding those of Pellizzari. The effect of this treatment was that the chancres healed, the headache disappeared, the general condition was much improved, and the roseola nearly faded away; in the opinion of the authors, the benefit was appreciable, but nevertheless insufficient. In the experiments subsequently made, with the object of conferring on animals immunity and, indeed, a curative power, the authors reasoned by analogy, and proceeded on the principles employed against other infectious diseases in which the microbes were recognised. True, the pathogenic agent of *syphilis* had yet to be discovered; but they knew where to find it in large quantities, for the contagion of the infecting



chancres, and of the blood during the secondary period, proved the presence of the micro-organism of syphilis in these media. They therefore proceeded to inject under the skin of animals the blood of a syphilitic subject with well-marked roseola, and also the secretion from syphilitic chancres and secondary papules. The patients, into whom the serum taken from the blood of these animals was injected, were seventeen in number, some of whom had previously been submitted to a course of mercury, while others had not been treated in any way. Details of all these cases are given, and the conclusions arrived at by the authors were that the serums employed caused an improvement in a certain number of patients; their strength improved, headaches and pain in bones and joints disappeared, as did also in some cases cutaneous manifestations and mucous tubercles. But these favourable terminations were only met with occasionally; and in many instances, in spite of the injection of large quantities of serum, failure was more or less complete. Consequently, in the presence of such contradictory results, the authors felt some hesitation in recommending the treatment, and would await the result of more prolonged researches.

Héricourt and Richet (*Comptes Rend. de la Soc. de Biol.*, Jan. 12, 1895) give the results of the experiments on the effects of serotherapy in syphilis which they had been carrying on for the past four years in Professor Fournier's department. They reinforced the natural immunity of the animal by injecting into it the blood of a subject with pronounced secondary syphilis, in whom no treatment had previously been adopted. After a few days the blood of the inoculated animals was taken, and the serum derived therefrom was used for injection. A case illustrating this treatment was described by Triboulet. It was that of a young woman, a syphilitic of three years' standing, who had for ten months been suffering from an ulcerating tubercular syphilide of the leg. As she had not improved under ordinary methods of treatment, a trial was made of the serum injections, and 12 cubic centimetres were injected in the course of six days. At the end of that time she was seized with giddiness, headache, and pyrexia, accompanied by an urticarial eruption, and also by albuminuria. These complications necessitated a cessation from the injections, but after their subsidence a distinct amelioration in the condition of the patient was noticed, for at the end of a month her ulcer was almost healed, and she expressed herself as feeling better than she had for some time previously.

Héricourt further records the case of a woman who had contracted syphilis twenty years ago, and who was, in spite of

vigorous treatment, suffering from gastric crises, incoördination of movements, acute nocturnal headaches, and general neurasthenia. The serotherapeutic treatment was adopted, and in eight days 6 cubic centimetres, prepared as described above, were introduced in three injections. The result was complete disappearance of all the above-mentioned symptoms, with the exception of the occipital headache, which was rendered so trifling as hardly to occupy the attention of the patient. The favourable termination of this case led Héricourt to think that serotherapy was indicated in cases of locomotor ataxy supervening on syphilis. In a subsequent note Héricourt and Richet relate a case in which three large ulcerated gummata, which had resisted mercurial treatment for three and a half months, were completely healed after four weeks of serotherapy.

### **3. The treatment of syphilis by sublimate injections.**

Lewin (*Berlin. klin. Woch.*, 1895, 12, 13, and 14) gives a full account of the results he has obtained in 80,000 cases of syphilis treated by sublimate injections, and compares this with the other methods of treatment. He uses a 0·6 per cent. solution, and injects daily 2 grammes, or 0·01 of the sublimate. He formulates the dangers and disadvantages consequent on the uses of insoluble preparations, none of which were met with in his long series of cases. With soluble preparations, stomatitis occurred in from 10 to 40 per cent. With sublimate injections it could easily be avoided. Enteritis had been noted in from 3 to 5 per cent. of those treated with the insoluble salts. In his series no such case had been met with. Pulmonary embolism had been observed after the use of the insoluble preparations, but never when the sublimate was employed. Nerve symptoms, such as headache, tinnitus, and weakness of the extremities, extreme pain, and the not infrequent occurrence of abscesses, were further disadvantages inseparable from the use of the insoluble salts, and not present after the sublimate method. He employed injections once a day, and, in severe cases, had administered them as often as thrice daily; but with the insoluble preparations the injections were given once in every five or ten days, and increased absorption could not be depended upon if they were employed at shorter intervals. He is further of opinion that relapses were more frequent after the use of insoluble salts; and finally, seeing that fifteen cases had been recorded in which death had resulted from their employment, he considered that the treatment should be abandoned.

#### **4. The treatment of mercurial stomatitis.**

**Von Düring**, of Constantinople (*Sem. Méd.*, May 22, 1895), recommends chromic acid in preference to all the usual methods of treating mercurial stomatitis. He employs a 5 or 10 per cent. solution, which he applies daily to the affected gums. Immediately after its use, the patient is instructed to rinse out his mouth to get rid of the excess of acid, which is extremely poisonous. Gargles of alum or chlorate of potash are also prescribed, and the teeth are carefully cleansed every morning. If the salivation is excessive, large quantities of milk are administered, and free perspiration is encouraged. The chromic acid was also useful for ulcerations of the buccal mucous membrane, whether syphilitic or mercurial.

#### **5. The treatment of gonorrhœa by the intra-vesical injections of potassium permanganate.**

**Valentine** (*Journ. of Cutan. and Gen.-Urin. Dis.*, June, 1895) recommends intra-vesical injections for gonorrhœa, after the method of Janet, of Paris. A glass irrigator, capable of holding 2,000 grammes, is employed, and to this is attached a rubber tube ten feet in length, the free end of which is slipped over a glass nozzle, which will, when introduced, occlude the meatus. The irrigator is filled with a warm solution of permanganate of potassium of a strength of 1 ad 6,000, which, as tolerance was established, could be increased to 1 ad 4,000 or 1 ad 2,000. The irrigator is then raised, and the solution is allowed to flow over the prepuce and glans penis, so as thoroughly to cleanse those parts; the nozzle is then introduced into the meatus, and the urethra is thoroughly irrigated, the solution being allowed to escape; then, the meatus being firmly held, the solution is forced into the bladder, the patient assisting this procedure by forcible inspiration or by efforts at urination. In most cases the compressor urethræ easily yields to the pressure, in others some patience is required to effect this. When the bladder is filled, the patient is allowed to extrude the fluid. These injections are used three or four times on the first day, twice on the following three days, and after that once daily, until all gonococci have disappeared, usually by the twelfth day. The patients are instructed to return one week after the disappearance of the discharge, and then a 2 per cent. solution of nitrate of silver is applied to the urethra, a proceeding which is followed by a profuse discharge. If this is found to contain gonococci, the irrigation treatment described above is repeated; if no gonococci are present, the discharge subsides within twenty-four or forty-eight hours. The nitrate of silver application is

repeated after a week's interval, and if then no gonococci are present, he is considered cured.

**Visconti** (*Rif. Med.*, Feb. 9, 1895) also advocates the use of permanganate of potash of a strength of 1 in 10,000 to 1 in 5,000, but he limits the irrigation to the urethra, and does not attempt to force it into the bladder. He introduces from 6 grammes to half a litre (3xvii.), and permits it to escape forthwith. The irrigations are used twice daily for the first three days, and subsequently only once a day. The results obtained are described as very satisfactory.

**Cumston** (*Journ. of Cutan. and Gen.-Urin. Dis.*, Oct., 1895) recommends irrigation of the urethra, since, if the disease is controlled when situated at the anterior part of the urethra, it is unnecessary to introduce the solution as far back as the bladder. He connects the tube of the irrigator with a conical-headed rubber catheter, perforated by three holes at the base of the cone, thus giving a recurrent flow. The amount of the solution employed is one litre, of the strength of 1 to 3,000, and one irrigation is practised daily. The catheter is introduced into the urethra for about an inch, and the solution is turned on; the catheter is then slowly pushed back as far as the neck of the bladder, and the solution is thus allowed to wash the whole mucosa, which it penetrates, and, by so doing, attacks the gonococci hidden beneath the surface. The conclusions arrived at by the author are:—(1) The average duration of the affection is fifteen days; (2) complications, such as cystitis, orchitis, epididymitis, arthritis, and bubo are very infrequent, chordee also is seldom met with; (3) ardor urinæ only lasts at most four days, usually only two; (4) gleet does not supervene if the treatment has been properly carried out.

#### **6. The treatment of gonorrhœa by argentamin.**

**Albertazzi** (*Gaz. de Osped.*, July 16, 1895, and *B. M. J. Epitome*, Aug. 3, 1895) describes the results of his treatment of gonorrhœa by argentamin, which is a phosphate of silver dissolved in ethylenediamin. In 1 in 4,000 and 1 in 2,000 solutions it makes a good urethral injection, and, as it does not coagulate the albumen in contact with the urethral mucous membrane, it is able to reach the gonococci hidden in the intercellular spaces of the epithelial stratum. The author had only one negative result in fifty cases, and in that one instance the patient would not submit to the customary disciplinary measures. Solutions of 1 in 4,000 sterilise pure cultures of gonococcus after five to seven minutes' contact.

jections of 1 in 1,000 are borne without appreciable pain.

secretion increases after the first few injections, but then

diminishes progressively and rapidly. Usually after five or six days an improvement in the character of the discharge takes place. The period of treatment varies from seven to fifteen days. These injections could be used at any period of the disease, even in the early acute stages.

### **7. The treatment of urethritis.**

**Guiteras** (*Journ. of Cutan. and Gen.-Urin. Dis.*, April, 1895) explains the methods by which he has obtained the best results in the treatment of urethritis. He treats the acute stage with alkalies, and anterior astringent injections composed of five grains each of sulphate of zinc, alum, and carbolic acid, with one drachm of glycerine to the ounce of distilled water; this is used three times a day after washing out the anterior urethra with hot water. Where there is great inflammation about the glans and prepuce, with possible lymphatic complications, he omits the injections and employs diluents, hot baths and purgatives. If the above injection has no effect he employs a stronger one, composed of ten grains of sulphate of zinc and half an ounce of fluid extract of hydrastis to four ounces of water. Should this fail, he employs a still stronger one, composed of ten grains of sulphate of zinc, fifteen grains of acetate of lead, one drachm each of tincture of catechu and tincture of opium to four ounces of water. This treatment is, as a rule, sufficient; but should the posterior urethra become involved, low diet, tincture of belladonna or suppositories of morphia and belladonna are prescribed; as soon as the symptoms abate somewhat instillations of nitrate of silver, one grain to the ounce, are given, and at the same time sandal-wood, cubebs, or copaiba by the mouth. If the discharge is rebellious, daily irrigations of a 1 to 3,000 solution of permanganate of potash are employed, the catheter being passed as far as the bulb of the urethra, or, if necessary, the fluid may be injected into the bladder. Should this fail, a weak solution of nitrate of silver is substituted, commencing at 1 to 8,000, and increased up to 1 in 1,000. If the gleet discharge still continues, an endoscopic examination should be made and nitrate of silver applications made through it.

### **8. The treatment of epididymitis and orchitis by guaiacol.**

**Tuttle** (*Journ. of Cutan. and Gen.-Urin. Dis.*, October, 1895), bearing in mind the property of guaiacol to reduce temperature and quiet pain, applied it locally in cases of swollen testicle. About 10 minims of the drug are painted along the line of the cord and the upper part of the scrotum, which is subsequently left uncovered for half an hour; the scrotum is then drawn

upwards on the abdomen, covered with a layer of flannel, on which is placed an ice-bag filled with water as hot as the patient can bear. These hot applications are kept on until bedtime, when the patient is directed to apply an ointment of 25 per cent. ichthyol in lanolin; this is surrounded by rubber protective tissue, and the organ is supported by bandage against the abdominal wall. In case the pain and pyrexia return on the following day, the application of the guaiacol may be renewed, but it is best not to do so till thirty-six hours later. In all the cases treated, seven in number, it was never necessary to make more than two applications, and these never failed to relieve the pain within two hours. The results were possibly no better, as far as the final issue was concerned, than those obtained by other methods, but the immediate relief from pain, the very short period of confinement, and the absence of any untoward symptoms or results, convinced the author that this plan of treatment contrasted favourably with any other. One precaution was necessary: the guaiacol should never be painted upon the lower portion of the scrotum, or upon the scrotal tissue proper, as it is apt to produce excoriations; care must further be taken to obtain the drug in its purity.

#### **9. The treatment of balanoposthitis and chancroids by nosophen.**

In cases of balanoposthitis Seifert (*Wiener klin. Woch.*, No. 12, 1895) advocates the use of this substance, a thin layer of which should be applied to the glans penis and inner surface of the prepuce, and subsequently a thin layer of cotton-wool interposed between them; the dressing should be renewed daily; within two or three days the eroded surface is dry and covered with a perfect epithelial layer. In soft chancres the base of the ulcer was first cauterised with liq. ferri perchlor., and then the nosophen was dusted on. Nosophen, formerly known as iodophen, is a yellowish powder, obtained by acting upon phenolphthalein with iodine, of which it contains about 60 per cent.; it is soluble with difficulty, possesses no disagreeable odour, forms a fine powder, and has a remarkable drying action.

#### **10. The treatment of epididymitis by vasogen iodide.**

Leistikow (*Monatsheft. für prakt. Dermat.*, vol. ix., No. 10) recommends the use of vasogen iodide in cases of acute and chronic gonorrhœal epididymitis, in all glandular swellings, and in syphilitic and tubercular affections of the skin and mucous membranes. The vasogens are oxygenated vaselines, which under many drugs soluble, and which, by their emulsifying

properties, promote the absorption of the substances with which they are employed. Vasogen iodide evaporates very rapidly, so that no stains of iodine are left after its application, and it has a remarkable effect upon chronic inflammatory thickening, such as is met with in the epididymis after the subsidence of the more acute inflammatory trouble. In fifteen cases of gonorrhœal epididymitis he had obtained good results from frictions two or three times a day with vasogen iodide of 6 per cent. strength ; it had also been of use in inguinal and cervical adenopathy ; it might with advantage replace tincture of iodine and other similar preparations in cases of this nature.



# THE DISEASES OF WOMEN.

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## I.—DISEASES OF THE OVARIES.

WHEN ovariectomy was first introduced, all ovarian cysts were grouped together as "ovarian dropsy." After many operations had been done, it came to be recognised that there were different kinds of ovarian cysts, having different clinical histories. A broad distinction was made between glandular or multilocular cysts and papillomatous cysts. In the laborious paper which is the first that I quote the author shows grounds for a subdivision of papillomatous cysts into smaller groups, each having its own clinical peculiarities.

### **1. Papillary tumours of the ovary.**

Pfannenstiel (*Arch. für Gyn.*, Band xlvi.) has written a long and important paper on this subject, from a clinical point of view. The generally accepted view, that there is an essential difference between the multilocular or glandular ovarian tumour and the papillary tumour, that they have a different origin, and that the papillary tumour is clinically malignant, he mentions to dispute its correctness. He holds with **Waldeyer**, in opposition to **Olshausen**, that the multilocular and the papillary tumours do not essentially differ as to their origin, and he points out that not all papillary tumours are malignant in their course. Tumours have been removed which had papillary growths on their exterior, and with which ascites had been long present, and yet there were no growths on the peritoneum; and in other similar cases in which there were growths on the peritoneum the tumour has been removed and permanent recovery has followed. Either, then, papillary tumours are non-malignant at one period of growth and malignant at another, or there are different kinds of papillary tumours. Pfannenstiel has examined sixty papillomatous ovarian tumours removed in the Breslau Klinik, forty-three of them microscopically. In the present paper he gives the results of these investigations.

*Papillomata* cause trouble earlier than multilocular tumours, and therefore are usually smaller when removed. This is from

their tendency to invade the broad ligaments and to cause ascites. Two-thirds of Pfannenstiel's papillomata were formed of more than one cyst. Among the sixty cases, in twenty-nine both ovaries were affected; so that Pfannenstiel's material consisted of eighty-nine tumours. There are two kinds of papillomatous tumours: cysts with papillary growths inside them, and solid tumours with papillary growths outside. Of the eighty-nine tumours, ten were of the latter kind, or one-ninth. In four of the sixty cases, there was a papillary cyst on one side, a solid papilloma on the other. The two kinds, solid and cystic, are essentially the same, and ought not to be separately classified. The growth is in both of epithelial origin. It is a papillary adenoma. The one tumour is a *papillary cystic adenoma*, the other a *superficial papillary adenoma*. There are a few tumours, much rarer, in which connective-tissue growth preponderates: *papillary fibroma*. These are of two kinds: *fibro-papillary dropsy of the Graafian follicle*, and *fibro-papillary parovarian cysts*. In some of the papillary cysts the papillary contain gland formation with regular columnar epithelium; these are pure adenomata. In others the epithelium is polymorphous; these are *papillary adeno-carcinoma*.

The papillary cystic adenomata are of two kinds. In one, which Pfannenstiel calls the *pseudo-mucinous* form, the fluid is like that in the glandular cysts; the tumours seem to be glandular cysts with papillary growths in them. The others are not so large, have not so many cavities, contain no thick pseudo-mucinous fluid, but instead thin fluid. This difference is not accidental. The latter, which Pfannenstiel calls *simple papillary adenoma*, are lined with ciliated epithelium. Lastly, in some tumours there are bits of *sarcomatous* tissue.

Pfannenstiel thus finds that ovarian papillomata are of three kinds:—

1. Papillary adenoma—

- (a) pseudo-mucinous.
- (b) simple, or ciliated.

2. Papillary adeno-carcinoma.

3. Mixed tumours—

- (a) papillary adeno-sarcoma.
- (b) papillary carcino-sarcoma.

Pfannenstiel, having thus divided the different kinds of papillary tumours, considers each from the point of view of clinical malignancy.

## A.—PAPILLARY PAROVARIAN CYSTS.

Pfannenstiel has seen only three of these rare cases. There is nothing malignant about them. They grow slowly, do not cause ascites or secondary growths on the peritoneum, do not invade neighbouring parts, nor cause metastases or cachexia; and do not recur after removal.

## B.—PAPILLARY TUMOURS OF THE OVARY.

**I. Papillary dropsy of the Graafian follicle.**

These (a single cyst, about as big as a foetal head, with low warty growths inside it) being rare, Pfannenstiel reports only two of them. There was no ascites nor metastases nor cachexia; they grew slowly, and after removal did not recur. Such tumours are clinically innocent.

**II. Papillary adenoma.***(a) Pseudo-mucinous papillary adenoma.*

These form about 16 per cent. of ovarian papillomata. In macroscopic characters they look like glandular tumours containing papillary growths. They are really a variety of the glandular tumour. They differ from the ordinary glandular tumours and resemble the papillomata in that they are often bilateral. In one of these cases there was a solid papilloma in the other ovary. They do not invade neighbouring parts, nor do they cause metastases. In one case the tumour was intraligamentous, but not the papillary growths. In one case there were secondary growths in the peritoneum which were not removed, but the patient recovered and lived for at least three years, although suffering from the masses left behind. These tumours do not cause either ascites or cachexia. Although they have a great power of growth and a power also of implanting themselves in the peritoneum, yet they cannot be said to be malignant.

*(b) Simple or ciliated papillary adenoma.*

These form about 35 per cent. of ovarian papillomata. They are often bilateral. They are not so large when first noticed as the pseudo-mucinous tumours. There are often external as well as intracystic growths, either in the other ovary or on the cystic tumour. They are generally multilocular. They contain thin, cloudy, serous fluid, never colloid stuff. They grow slowly. In about half there is a good pedicle; in the other half the growth is *intraligamentous*. When the latter is the case, pressure symptoms; *disturbance of circulation through the uterus, leading to bleeding; pain down thighs; œdema; hydronephrosis* may occur.

Enucleation of such a tumour often causes great hæmorrhage, and is apt to be incomplete, bits being left behind which will grow. Hence in some of these cases it is better not to try to remove the tumour. Metastases do not occur. Secondary growths in the peritoneum sometimes occur, and when left behind at an operation are almost sure to grow at some future time. Ascites is present in about 60 per cent., especially in cases in which there are papillary growths on the outside of the tumour, and it occurs early. Ascites and intraligamentous growth are the reasons why these tumours are detected while they are small. Papillary adenomata are not malignant because they do not invade adjoining tissues, nor cause true metastases, nor produce cachexia, nor recur after extirpation. Pfannenstiel does not believe that the expressions "cancerous degeneration," "sarcomatous degeneration" are correct. Tumours in which this has been supposed to have taken place were cancerous or sarcomatous from the beginning, only there is a stage in their growth at which their true nature is not evident.

### **III. Papillary adeno-carcinoma.**

These form nearly half of ovarian papillomata. As a rule they do not exceed a man's head in size, and many are smaller. This is because they give trouble early. There are often papillary growths on the outer surface. These often present macroscopical signs of cancer in the ease with which they break down. Papillary adeno-carcinomata are bilateral in more than two-thirds of the cases. They grow much more quickly than adenomata. In one case an ovary which at the time of operation looked healthy, three months afterwards had grown to the size of a man's head. As they grow they tend to displace adjoining parts rather than to grow into them. Metastases occur; they have been seen in the vagina, the retro-peritoneal glands, the inguinal glands, the tubes, the uterus, the stomach, the liver, the periosteum of the ribs. Secondary growths on the peritoneum are present in about 30 per cent. Tumours of this kind cause cachexia and great ascites. After operation, recurrence takes place usually within a year, and that even when the operation has been, so far as could be judged, a complete one, the tumour has been removed entire, and neither secondary growths nor metastases were present at the time of operation.

### **IV. Papillary adeno-sarcomatous cyst.**

Pfannenstiel has only one case of this rare form. Its clinical features were those of malignancy: rapid recurrence after apparently complete removal.

He claims to have shown that the general prognosis of ovarian papillomata is not so absolutely unfavourable as is to-day

generally supposed, although it is unfavourable because so large a proportion of such tumours are cancerous and because so many benign adenomata cannot be completely removed on account of their tendency to intraligamentous growth.

The therapeutic lessons are: 1. The necessity for the earliest possible removal of all ovarian tumours, so that they may be extirpated before secondary or metastatic growths have sprung up; for, before removal, it is not possible to be certain of their nature. 2. The desirability of avoiding, if possible, puncture of the tumours, especially in the case of intraligamentous tumours. 3. That in all cases of papillomata both ovaries should be removed, unless the patient strongly objects, the point having been explained to her before operation.

## **2. The origin of ovarian suppuration.**

Cullingworth (*Obst. Trans.*, vol. xxxvi) publishes three cases of abscess in the ovary, in which the local condition ascertained by operation showed the suppuration to have been started by extension of inflammation along the Fallopian tube to the ovary. In one case the abscess had burst into the peritoneal cavity; but, owing to the presence of adhesions, it did not become diffuse, but formed an intraperitoneal abscess, which rapidly increased in size. In this case the abscess was opened and the diseased uterine adnexa were removed by abdominal section. The patient died. [The abscess might have been opened through the vagina; had this been done, it seems to me that the immediate risk to life would have been less. True, the suppurated tube and ovary would have been left; but, when the abscess had been drained, might not these parts have recovered?] Cullingworth remarks on the frequency of small suppurated ovarian cysts as causes of pelvic peritonitis. Out of eighty-three cases of non-cellulitic pelvic suppuration operated on by him, in thirty, or more than a third, one or more suppurated cysts were present in the ovary. In the discussion on this paper, Galabin related cases from his own experience showing the frequency with which suppuration in the Fallopian tube was associated with small suppurated cysts in the ovary, sometimes not large enough to be detected without cutting into the ovary; and therefore the greater safety of removing the ovaries as well when suppurated tubes were removed.

## **3. Ovarian suppuration by extension of cellulitis.**

Targett (*Obst. Trans.*, vol. xxxvii.) exhibited a specimen of suppurative peritonitis set up by rupture of an abscess in the ovary. The patient had died four days after delivery. On either side of the body of the uterus the subserous tissue was infiltrated with pus; and this condition extended laterally into

the broad ligaments, and downwards to the base of the bladder. The Fallopian tubes contained no pus and were free from disease. The right ovary was replaced by a spongy mass of sloughing tissue. On section its substance was found infiltrated with pus; and many small abscesses had formed in its tissue, one of which had burst into the peritoneal cavity. The left ovary was smaller, and almost detached from the broad ligament by sloughing. The specimen demonstrated the occurrence of acute suppuration of the ovary by direct extension of puerperal septic parametritis. [In this case it is obvious that abdominal section would not have cured the patient.]

## II.—INFLAMMATION OF THE UTERINE APPENDAGES.

These diseases, which have sprung into clinical notice within the last fifteen years, were discovered to be common, and for a long time treated by removal of the inflamed parts, by abdominal section. But it was found that the results of such operations were not entirely satisfactory. (See "Year-Book," 1894, p. 307; and 1892, p. 331.) Hence Péan initiated the practice of removing the uterus by the vagina for chronic suppuration of the appendages (see "Year-Book," 1893, pp. 309 *et seqq.*), thus removing the cause of the disease and getting free drainage of the suppurated parts. Landau, of Berlin, went further, and removed the inflamed appendages as well as the uterus. (See "Year-Book," 1895, p. 318.) This has been done by a different method by Leopold, whose work I next summarise. The practice has been taken up very warmly in America; and, after referring to Leopold's paper, I shall quote the opinions of several American operators on the subject. They seem to prefer to open the abdomen and remove the uterus by that route. By this method the advantages of a vaginal operation are lost. Whether anything is gained, experience will show.

### **4. The vaginal extirpation of the uterus and its appendages for severe chronic disease.**

Leopold (*Geburtshülfe und Gynäkologie*, Band ii.) summarises his experience of this operation since 1885. During the nine years since this date he has performed this operation thirty-seven times, so that he cannot be accused of exceptional readiness to do it. In cases of persistent inflammatory disease of the uterine appendages which resist all treatment, impair health, and make life a burden, the choice lies between laparotomy and removal of the diseased parts by the vagina. The former operation is

undoubtedly successful. Why, then, not keep to it? Leopold says it is a more serious one than the vaginal operation. Now and then an unexpected death takes place from fouling of the peritoneum with pus. In patients of the labouring class ventral hernia is frequent. Many patients, after removal of the appendages on both sides, still complain of menstrual troubles, of hæmorrhage, of persistent pelvic pain, and get inflammatory exudation round the stumps, so that the result can only be described as moderately successful. Further, every operator who has dealt with large numbers of these cases has met with some in which he has been unable to complete the operation. These untoward results are less common after vaginal extirpation. The advantages of the latter operation Leopold puts as follows:—(1) Complete removal of the diseased parts, the inflamed uterus not being left to cause further trouble; (2) the wound is at the lowest point of the peritoneal cavity, and hence in the best possible situation for drainage; (3) the field of operation can be made completely accessible even in the nullipara, and in the case of large swellings of the tubes and ovaries; (4) no risk of ventral hernia; (5) less danger than in laparotomy, because the adhesions between the affected parts and the bowels practically shut off the general peritoneal cavity. In performing the operation, Leopold first makes the parts accessible by a long and deep incision throughout the length of the vagina on the left side. Then the uterus is seized with volsellæ. The mucous membrane is cut through by a circular incision round the cervix. With the finger or blunt instruments the bladder and cellular tissue are stripped off as high up as possible. If Douglas's pouch is not obliterated by adhesions it is opened. The broad ligaments are then tied, by means of an aneurysm needle, in pieces not larger than a lead pencil. The vesico-uterine pouch is opened if necessary, and adhesions stripped off the uterus, the finger being passed over the top of the uterus. When the uterus has been freed as far down as Douglas's pouch, any remaining lateral attachments of the uterus are easily tied, and the organs thus freed. Then two or three fingers of the left hand are passed up into the pelvic cavity in search of the left uterine appendages. With some practice these are easily identified, adhesions are broken down, and the parts are brought down into the wound. Pressure from above with the other hand helps in this. If there is a large tumour it is opened, the surrounding parts being *first protected* with gauze, and afterwards washed. Then two *or three* fingers of the right hand are passed in, to free the *right uterine appendages* in the same manner. In no case has



Leopold injured bladder, rectum, or ureter. The greatest care is necessary in tying the broad ligaments. Ligatures of moderate thickness should be used and not pulled too tight, because the tissues are often soft and easily broken down. Even the smallest bleeding point should be secured. The anterior and posterior peritoneal folds are united with a silk suture. When the operation is finished, the operation wound is plugged with gauze. Of his thirty-seven cases, Leopold has lost only one. In most of his cases gonorrhœa was the cause. Some of them had been previously treated by massage, a method of treatment which made them worse. Leopold compares the after-results of these cases with those of laparotomy. Only three-fourths of his laparotomy patients reported themselves; but of these a fourth still complained of pain or hæmorrhage unfitting them for work. Nothing of this is seen after vaginal extirpation. Strikingly complete restoration to health is seen. No more complete therapeutic measure can be adopted than this operation. The parts are much more accessible than in the case of laparotomy. One objection is that the disease may be unilateral; in that case, by laparotomy the healthy parts can be left untouched. This is true; but in perimetritis it is rare for both sides not to be affected. It may be objected that the sexual function is destroyed. Leopold says that the number of married couples to whom happiness has been restored by this operation is to him sufficient proof to the contrary. In some supplementary remarks, Leopold vindicates his own originality in adopting this operation, and proves that he was not indebted to Péan for showing him the way.

### **5. Extirpation of the uterus in disease of the adnexa.**

This question has been much discussed at the meetings of the American Gynæcological Society. Vol. xix. of its Transactions contains several papers on this subject. The first is by Baldy, of Philadelphia. He asks: Is the uterus essential or useful after both ovaries have been removed? Argument he thinks superfluous; the uterus has nothing to do with the peculiarities which make up womanhood, nor with the integrity or support of the vaginal vault. This question being disposed of, then the following questions have to be answered: (1) Are all patients cured after an operation requiring double oöphorectomy? Common and universal experience answers in the negative. (2) Are patients cured after hysterectomy, when double ovariectomy has failed? Experience alone can provide the answer. Baldy reports two cases in which removal of the uterus cured the patients when removal of both

ovaries had failed to do so. (3) Does the operation of hysterectomy increase the mortality above that of double oöphorectomy? Baldy thinks that hysterectomy lessens the mortality and renders convalescence smoother. (4) Is the retention of the uterus of any disadvantage or danger to the patient? Not infrequently the womb bleeds and gives rise to muco-purulent discharges after removal of the appendages. These cases can be cured by removal of the uterus. Some think that as much as 20 per cent. of tubal inflammation is due to tubercle. In such cases, would any surgeon wish to leave the uterus behind? Tubal inflammation is secondary to uterine. Is it not rational to remove the whole disease and not merely a part? Baldy does not recommend removal of the uterus when it is healthy; and it should never be removed if it is possible to leave behind the appendages on one side.

Hysterectomy being determined on, the next question is the choice of method. French surgeons prefer the vaginal method; Americans, Baldy thinks, the abdominal, for the following reasons: (1) All the parts are seen; hence greater accuracy and safety. (2) Intestinal injuries are readily discovered and corrected. (3) The adnexa may be completely removed with the womb. (4) All wounds may be closed, denuded surfaces covered with peritoneum, and drainage avoided.

**Florian Krug** (*Amer. Gyn. Trans.*, vol. xix.), writing on the removal of suppurated uterine appendages, says: "Did the removal of these gross but secondary lesions cut short the symptoms, or did we not by their removal leave the essential and primary cause of all the trouble, together with the less apparent but more fruitful source of suffering—the inflamed uterus and its nerve centres? I unhesitatingly answer, Yes." He goes on to say: "We are now in a position to . . . estimate the benefits derived from the old operation of removal of bilateral purulent disease of the appendages; and we are also able to say in how far that operation has failed. . . . While pathologically they are cured, few are symptomatically relieved. The cause . . . lies in our failure to remove the original and persisting source of infection. The question has simply resolved itself into this: that either the cases operated on by those who claim that the uterus, when left, is not a cause of further symptoms, and may be rendered innocuous by mild treatment, are not thus cured, or else gentlemen making these statements have had, as a rule, the most simple cases submitted to their skill, and in the severe ones have failed to observe the results of their work. The cause of the continuance of distressing symptoms is the primary lesion in the *diseased uterus*, the effect of the premature and artificial menopause

upon the sympathetics, the irregular and delayed involution of the uterus, the adhesions formed between the intestines and raw surfaces in the pelvis, the possibility of repeated reinfection of the uterus, the possibility of ventral hernia, owing to the different methods of drainage; and many other lesser lesions, together with malpositions, natural to the uterus when repeatedly inflamed and deprived of its natural supports. Broadly stated, a continuance of the symptoms is due to a retention of the inflamed uterus, which is the primary seat and original cause of every lesion found in these cases, and the effects of its continued influence upon the pelvis, (*sic*) lymphatics and nerves." Krug then goes on to relate cases illustrating the better result in cases of suppurated appendages when the uterus is removed than when the tubes are removed, and argues that the removal of the uterus lessens the mortality in the hands of those familiar with the technique of hysterectomy.

**Horace Tracy Hanks** (*Amer. Gyn. Trans.*, vol. xix.) believes that "there are certain pathological conditions of the pelvic organs, other than fibroids and cancer of the uterus, which both justify and urge the expert and judicious operator to remove the uterus entire as well as the uterine appendages." Hanks can recall a number of patients from whom he has removed the uterine adnexa "who still continued to be invalids; patients who had symptoms which called for palliative treatment, patients with periodical discharges of blood or pus, or severe and frequently recurring attacks of pelvic pain caused by small cysts and nodules forming near the site of the pedicle, etc.—such symptoms as were described as 'a constant dragging and throbbing pain in that locality, etc.'" At first Hanks thought these imperfect results were due to faults in his technique, but he finds that in spite of care, and the increased skill gained by experience, they persist after his later as after his earlier operations. He thinks better results will be attained by the removal of the uterus with the adnexa. He specifies three groups of cases in which he thinks this ought to be done: (1) For pyosalpinx when there is possibility, or rather a probability, of a purulent or chronic endometritis; (2) for a puerperal metritis or perimetritis of a purulent character (in which case it should be done early); (3) for chronic salpingitis when the uterus, tubes, and ovaries are diseased and displaced, and are imbedded in plastic exudate. There are other conditions in which he would advocate extirpation of the uterus; but in these three classes of cases he has had actual experience, and the results have justified these conclusions. Hanks prefers the suprapubic method of hysterectomy.

**Bache Emmett** (*Amer. Gyn. Trans.*, vol. xix) thinks that the value of removing the uterus *per vaginam* for suppuration within the pelvic cavity, as practised by Péan, Segond, and others, has been placed almost beyond dispute, and he expects to see it more widely adopted in America. In pus sacs which cannot be enucleated, thorough drainage is the one desirable thing, and this can be much better attained by ablation of the uterus than without it. But the operation which Polk and others are now practising and recommending consists in opening the abdomen, inspecting and examining the tubes and ovaries, and if they are found diseased, removing the uterus along with them. Emmett thinks this justifiable only in exceptional cases—those mentioned above and those in which the womb is itself diseased. He says the uterine end of the tube is either closed or open. If closed, fresh infection cannot take place through it; if open, the tube should be drained through the uterus (a tube not open enough for drainage may be quite permeable for micro-organisms). When the uterus is allowed to remain after removal of the appendages, trouble afterwards occurs only in a very small percentage of cases. When patients return with sufferings not abated but only modified, it is generally not because the uterus has been left, but a portion of diseased ovary. If the uterine end of the tube is diseased it can be cut out and the peritoneum brought together over its site, or the diseased mucous membrane can be destroyed by cauterisation. The removal of the uterus along with the tubes makes the operation a larger one, attended with greater shock.

**W. Gill Wylie** (*Amer. Gyn. Trans.*, vol. xix.) says that "it is true that in many cases in which the tubes and ovaries have been removed the patients have suffered from incomplete removal of all ovarian or tubal tissues, especially when menstruation persists, and from existing or subsequent disease of the uterus, or from suppuration about the stump, which is prolonged by the presence of the ligature; but in the large majority of cases, where the tubes and ovaries have been carefully and completely removed by operation the subsequent suffering has been slight and a complete cure has been effected. Most of those who do suffer after removal would have escaped any unusual pain had the uterus been divulsed, curetted and drained" either before or after the operation. [Some evidence in support of this statement seems to me wanted; I know of none.] But Wylie goes on to say: "My experience is that where the uterus is removed together with the tubes and ovaries, there are less reflex disturbances such as are common in women at the menopause who have or have had disease of the uterus, than there is in similar cases where the

uterus is not removed when the tubes and ovaries are taken out." We should make a careful study of the effects, immediate and remote, of hysterectomy before we extirpate the uterus. Removal of the ovaries in a full-grown woman does not change her character, but, as a rule, brings on the menopause. Wylie is not willing to say that it does not, after a few years' time, remove all sexual desire, or at least prevent complete intercourse in some cases. As a rule, the younger the woman the more marked is the tendency of the uterus and vagina to atrophy, to lose their normal elasticity and healthy tone; the vulva becomes so hyperæsthetic that intercourse may become impossible, and the parts, in some cases, become the seat of intractable erosions about the ostium, vagina, and urethra. After thirty-five, such conditions appear to be rare, and Wylie has not noticed it in women over forty any more than after the natural menopause. Wylie is not prepared to say what the remote effects of removal of the uterus and the appendages are. He thinks the removal of the uterus, as well as the tubes and ovaries, adds to the danger.

**William B. Pryor** (*Amer. Gyn. Trans.*, vol. xix.), speaking only of pelvic suppuration, says: "The uterus when retained only invites future infection; it adds to the existing pelvic neuritis a most distressing menopause; the menopause lasts for years; the pelvic pain persists; the cases are not, from their standpoint, cured; the uterus is prone to become displaced; its retention does not preserve any special function, and does not prevent atrophy of the genitalia. Removal of the uterus precludes, of course, the possibility of any further disease of that organ, any displacement, and any irregular atrophy; the menopause is short; there is nothing left to keep up the neuritis; atrophy of the genitalia is not hastened or exaggerated; and there is entire relief from subjective symptoms. Therefore it is that, observing the poor ultimate results obtained from the old operation both in my hands and in those of some who have opposed ablation of the uterus in these cases, I have adopted the procedure of removing the uterus in all cases demanding the removal of both adnexa." Further on Pryor states: "I firmly believe that we get as good results from palliative measures, such as curettage, vaginal tapping of abscess, etc., as we obtained by . . . removal of the adnexa only."

**Baldy** in a later paper (*American Gyn. and Obst. Journ.*, Sept., 1895) gives his further experience of hysterectomy for salpingo-oöphoritis. He has done the operation thirty-four times without a death. He adds statistics of other American operators,

comprising 223 cases, with six deaths : a mortality of 2.68 per cent. He says : " What better argument can one possibly offer in favour of any new procedure—a greatly lessened mortality, a surer and more thorough relief of symptoms, an easier and shorter convalescence, a freedom from any possible future disease of the womb ? "

In view of the comprehensive way in which some operators urge that the peritoneal cavity should be opened for pelvic suppuration of all kinds, I quote a paper containing wise and sober advice as to the treatment of abscess in the pelvic cellular tissue.

#### **6. The treatment of parametric suppuration.**

Veit (*Zeit. für Geb. und Gyn.*, Bd. xxx., S. 552) relates a case in which a parametric abscess burst into the bladder, but did not empty itself: every few weeks pus accumulated, the temperature rose, the general condition got worse, and then pus came away in the urine, and improvement followed. Then the pus would reaccumulate and the old train of symptoms came back. Veit treated this by making an incision above Poupart's ligament, like that for ligature of the common iliac artery. Then with the fingers he, without opening the peritoneum, got down into the abscess cavity. Urine and pus came up through the wound. The hole in the bladder easily admitted the finger. Putting a finger in the vagina and one in the abscess cavity, the spot in the vagina corresponding to the base of the abscess was identified, an opening made, and a drainage-tube put through it, and out at the abdominal wound. After the operation no more urine came away either through the wound or through the vagina, nor did the urine any longer contain pus. Recovery was complete in from four to six weeks. Veit urges that this is the way in which to open parametric abscesses, not by abdominal section, opening the peritoneal cavity, but by an incision such as that employed for ligature of the common iliac artery, and then pushing aside the peritoneum. Everyone knows that the ordinary parametric abscess pointing above and behind Poupart's ligament can be opened by such an incision; but Veit urges that deep abscesses can also be thus got at. There are two indications of the presence of pus on which Veit relies in obscure cases: (1) persistence of fever; (2) œdema of the skin over the inflamed part.

In quoting Wylie's paper, I have questioned his opinion as to the certainty of the benefit to be gained by curetting and *draining* the uterus, a therapeutic measure which has been largely *practised in France*, and the advocates of which say that in chronic *inflammation* of the uterine appendages and pelvic peritoneum

they get wonderful results from it. In England we have been accustomed to regard the existence of pelvic peritonitis as an indication against meddling with the uterus. The following may help the reader towards forming an opinion:—Fournel (*Nouv. Archives d'Obstét. et de Gynéc.*, Aug. 25, 1895) says that in mild cases of perimetritis, with little or no pain, dilatation has merely a negative effect and deludes the operator, who fancies that it is the cause of ultimate recovery. In cases of distinct suppuration surgical treatment is demanded at once. Dilatation is unsurgical. It not rarely kills, and very frequently aggravates the perimetric inflammation it is intended to cure.

### III.—DISEASES OF THE UTERUS.

The late Dr. Matthews Duncan began one of his clinical lectures by saying, "Who can tell what anyone means by endometritis?" The next paper I refer to will help to make this inquiry more easily answered in the future.

#### 7. Chronic endometritis.

This disease is one about which so little is known, and so much said, that I think a paper by Catharine van Tussenbroek and M. A. Mendes de Leon (*Arch. für Gyn.*, Band xlvii.), which contains original observations, is worth attention.

After remarking what great differences of opinion exist among gynæcologists about chronic endometritis, in spite of its frequency, its great interest, the amount of study given to it, and the modern improvements in our methods of research, they say that we are far beyond the time when women suffering from chronic endometritis were sent home with the diagnosis of "whites" and a bottle of steel, and when doctors were content with prescribing vaginal douches and cauterising the cervix. All are now agreed that when the endometrium is diseased it should be the part directly treated; but at this point unanimity ends. "Chronic endometritis" to one means bleeding, to another muco-purulent discharge, and to a third, infection by microbes.

The authors first describe the normal endometrium. They estimate its average thickness at about  $\frac{1}{2}$  of an inch. They point out that it varies very much, according to (1) the patient's age: thin in childhood, fully developed at puberty, undergoing atrophy in old age; (2) her constitution: in strong, healthy women, full blooded and fat, we should *à priori* expect the condition of the endometrium to be different from that of spare, nervous women whose thin tegumentary coverings point to slight development of the internal mucous membranes. [This *à priori* inference seems



atrophy of the mucous membrane. True endometritis causes purulent discharge ; pseudo-endometritis causes hæmorrhage. True endometritis is much commoner than is thought—far commoner than cervical catarrh. Catarrh limited to the cervix is comparatively rare. In virgins, true endometritis is less common than pseudo-endometritis. True endometritis and pseudo-endometritis may occur together ; this is especially frequent when there is subinvolution, which brings about vascular changes. When curetting has been done, energetic after-treatment is of the greatest importance.

[I think the authors overestimate the importance of the conditions they describe, and that they are rather over-diligent in their treatment. I have nevertheless quoted this paper at some length because I think it one of the most important ever written on the subject, by reason of the histological examination of the cases and the care taken to ascertain the results of treatment. And the details of treatment, even if they err in excess, may interest English readers.]

#### **8. Protozoa in chronic glandular endometritis.**

Rossi Doria, of Rome (*Arch. für Gyn.*, Band xlvii.), describes three cases of cystic glandular endometritis, in each of which he found amœboid bodies within the glands and within the cells. Each of the cases was cured by scraping away the diseased endometrium. In view of the recent observations of some investigators, showing the presence of protozoa in cancer, Rossi Doria's observations are of much interest ; for he points out that it is impossible to draw a sharp line between what most people call "endometritis" and simple adenoma of the uterus, or between simple and malignant adenoma. All intermediate cases are met with between the extremes, the one disease merging step by step into the other. The symptoms are the same. If, as Doria suggests, all the cases are due to a common cause, the effect of which depends upon the soil in which it grows, then glandular endometritis must be looked upon as a potential cancer capable of full development earlier or later, and requiring prompt and thorough treatment.

The next subject to which I refer is the removal of the uterus for cancer. I quote two papers showing how its risk has been diminished and the substantial benefit to be gained from it.

#### **9. The present position of total extirpation of the uterus by the vaginal method.**

A. Buecheler (*Zeit. für Geb. und Gyn.*, Bd. xxx.) writes a long article based on the results of the late Prof. Kaltenbach, of Halle. Kaltenbach's cases number 159, with six deaths, or 3·8 per cent.

Buecheler describes with care Kaltenbach's methods. He used a very broad speculum to retract the perineum—incising that structure in the middle line if the vaginal orifice was too small to admit the speculum—thus gaining a good view of the parts. The perineum was afterwards sewn up with catgut. He took the greatest pains to stop hæmorrhage as he went on, thus not only saving the patient from loss of blood, but making the field of operation clear to sight. He opened the peritoneum as soon as possible, passed in sponges having strings attached to them, to press bowels and omentum out of the way, and then felt the vessels in the broad ligaments with his fingers, so that he could ligature them with precision. He removed the appendages with the uterus. The difficulty of doing this, he thought, depended chiefly on the extent to which the broad ligaments were separated from the uterus before trying to bring down the tubes and ovaries. If this was done extensively and high up, there was no difficulty in bringing down the appendages with the tubes and ovaries. He thought removal of the appendages important not only because they were often diseased, but because when left behind troublesome molimina often occurred. After removal of the uterus he sutured the peritoneum. He thought this advantageous, because if not done certain undesirable accidents might occur, such as prolapse and incarceration of bowel, secondary septic infection, intoxication by means of the plugging material. The fear of wound secretions being retained if drainage is not provided for is baseless. The peritoneal wound heals at once. The wound secretions come from the cellular tissue outside the peritoneum.

The ill-results comprised six deaths—one from inclusion of a ureter in a ligature, two from sublimate poisoning, one from peritonitis due to puncture of a pyosalpinx which was not removed, one from pulmonary embolism, one from inclusion of the vermiform appendix in a ligature, and incarceration of a fold of bowel between the appendix and the cæcum. Other ill consequences comprised two vesico-vaginal fistulæ, not noticed to have been made at the time of operation, and in five others incontinence of urine, all of them in cases of very advanced cancer. There were eight cases of injury to a ureter, and one of a fæcal fistula. Fistulæ were less often due to a direct wound than to inclusion of a part in a ligature, or to sloughing around a ligature. Vesico-vaginal fistulæ often heal. Injury of the ureter is indicated by a sudden rise of temperature with a quiet pulse, and nothing to account for it. Renal pain and oliguria may be absent. *In all there were sixteen fistulæ, six of which healed*

spontaneously, seven were cured by operation, and three remained unhealed. Other minor complications delaying recovery occurred in seven

As to results. In ninety-two three years had elapsed since the operation. Three died from the operation. In nineteen no relapse had occurred up to date, and four others had gone three years without relapse, afterwards dying from some other disease or being lost sight of, making twenty-three free from recurrence for three years, or 14·4 per cent. of the total number, and 25·6 of those watched for three years. Two died without recurrence before three years had elapsed. Two were still living but suffered pain. In forty-seven recurrence had taken place. The result in sixteen was unknown. Buecheler quotes from Fehling the collected statistics of different operators, amounting to 778 cases with seventy-one deaths, a mortality of 9·1 per cent.—one considerably higher than Kaltenbach's. Kaltenbach attributed his superior results to two things: suture of the peritoneum and antiseptics.

Recent writers have urged the use of pressure forceps, saying that they shorten the operation. Buecheler says that most of Kaltenbach's operations took less than half an hour, and few more than three-quarters of an hour; that the risk of compressing parts that ought not to be compressed is greater with forceps than with ligatures; and he finds no evidence that hæmorrhage is less where forceps are used.

#### **10. The permanent results of total extirpation of the uterus for cancer, and the prevention of recurrence.**

Leopold (*Geburtshülfe und Gynäkologie*, Band ii.) has embodied his experience in a valuable monograph. It is based on 164 cases, in which more than six months had elapsed since operation. All patients in whom the uterus had been removed for cancer more than six months before the preparation of the paper were written to and told to come. If they pleaded the expense of the journey as an excuse for not coming, money was sent them to defray it. If that failed, or letters were unanswered, then the help of the police was sought, and in that way nearly every patient was traced. The operations extended over a period of nine years. Of the 164 only three were lost sight of; ten died soon after operation; eleven died later from some other disease. Of the ten deaths, seven were from sepsis, two from exhaustion, one from ileus. The total mortality was therefore 6 per cent. *The following are the points which Leopold thinks important for the prevention of mortality:* (1) Perfect administration of the

anæsthetic. Faults in this lead to vomiting, coughing, etc., and prolapse of bowel, with danger of ileus in consequence. (2) Proper selection of cases. When cancer has gone beyond the muscular tissue the case is unsuited for operation. (3) Perfect cleanliness; especially to avoid fouling of the peritoneum with fæcal matter or pus. Of the 140 cases remaining, fifty, or 35·7 per cent., died from recurrence of cancer: their average duration of life subsequent to operation was 19·7 months. Of the ninety living six months and upwards, seventy-five were medically examined—seventy by Leopold or his assistants, five by their local doctor. Of these, sixty-three were free from disease; in twelve recurrence had taken place. Fifteen reported—by letter: eleven that they were well, three in bad health, one doubtful. So that of the whole 140, we have relapse in 47·1; living six months and upwards without recurrence, 52·9 per cent.

Leopold next analyses only those watched after operation for at least two years. These number 123. Nine of them have since died from other diseases, nine died soon after operation, and one has been lost sight of, leaving 104. Out of the 104 forty-six, or 44·2 per cent., had died from recurrence; fifty-eight, or 55·8 per cent., were still alive; but in seven recurrence had taken place, leaving fifty-one, or 49 per cent., free from disease.

Leopold then considers the prevention of recurrence. The important points, he thinks, are: (1) Operation as early as possible; (2) careful avoidance of any fouling of the operation wounds with cancerous tissue. He appreciates highly the work of Winter (*see* "Year-Book," 1895, p. 326), and practises and recommends the mode of preparing cases for operation advised by Winter.

#### THE SURGICAL TREATMENT OF UTERINE FIBROIDS.

The surgical treatment of uterine fibroids is the next subject upon which I have to refer to work done. The first paper deals with the relation between fibroids and fertility. Then I quote a thoughtful review by Lusk of our resources against fibroids, followed by a statement by Hermes of the results of oöphorectomy. After these, I shall notice two papers describing new ways of removing these tumours.

#### **11. The relation between uterine fibroids and fertility.**

It has long been an accepted belief that uterine fibroids either caused *sterility* or were caused by it. Different opinions

have been held as to the nature of the relation, but that there was a relation has been generally taken as proved. It has also been commonly accepted, from those who have compiled monographs on the subject, that fibroids caused a tendency to abortion, and frequently led to dangerous complications of labour. The evidence in favour of these views was not strong, but it was unopposed. Hofmeier (*Zeit. für Geb. und Gyn.*, Bd. xxx.) has re examined this question. He quotes statistics which show that among married women with fibroids there is a larger amount of absolute and relative sterility than among women in general. But he points out that, before assuming that fibroids cause all this sterility, statistical tables need examination. From a table of his own he finds that in most cases of sterile marriage with fibroids there is reason to believe that at the beginning of sterile married life fibroids were not present, and that the sterility was due to other causes. He says further that we cannot fairly judge of the influence of fibroids upon fertility by comparing women with fibroids who consult gynæcologists with the healthy general population. We must compare them with the gynæcologist's other patients. We do not know how many apparently healthy women have fibroids. Hofmeier has compared patients with fibroids with patients without them, and finds that there is very little difference as to fertility between them. Most women who consult gynæcologists about sterility do so when young; how seldom it is that a fibroid is found in such patients! It is true that in many sterile women late in life fibroids are found. But then, what uterine diseases are common in such women? They are exempt from the diseases incident to parturition, and cancer is rare among them; their lives are easier than those of the unmarried, and such troubles as result from the non-satisfaction of the sexual instinct do not arise in them. It is thus easy to understand why, among a gynæcologist's patients of this class, he should often find fibroids. The proportion of married to unmarried suffering from fibroids Hofmeier finds about the same as that in the population generally at corresponding ages. He concludes that fibroids have no effect upon the reproductive function; that fibroids are very common, and, because at the age at which they grow the majority of women are married, fibroids are found oftenest in married women; that the frequent association in patients of fibroids with sterility is because the troubles connected with fibroids are among the few causes which bring sterile women in later life to the gynæcologist. Hofmeier gives further figures, few in number, but which, so far as they go, show that fibroids rather favour conception. Women marrying late in

life are often sterile. Those of Hofmeier's patients who married late in life show a rather larger fertility than other patients marrying at corresponding ages. His conclusion is that fibroids in early life do not affect fertility, that in later life they prolong sexual activity and increase fertility. He next considers abortion, and shows that the proportion of abortions to labours at term is not larger in women with fibroids than in other women. He admits that fibroids do sometimes form a dangerous complication of labour, but holds that such cases are rare, and that by patience, early recognition and treatment, and strict antiseptic precautions, danger can be greatly diminished. Supervision is especially needed during the third stage of labour. It must be remembered, in examining tables made up of published cases, that many of the cases have been published because they presented some unusual difficulty. Hofmeier lastly considers the treatment of fibroids during the puerperium, and concludes that as a rule the best and safest time for any operative treatment of fibroids is not soon after delivery, but some weeks and months later. The paper illustrates the occasional need for revision of accepted views.

## **12. The treatment of uterine fibroids.**

Lusk (*American Gynecological Trans.*, vol. xix.) chose for the subject of his Presidential Address to the American Gynecological Society the relative values of the various surgical methods of treating uterine fibroids. His well-weighed, cautious, and judicious advice seems to me worth quoting. First, if the uterine growth is of small size and the symptoms slight, he asks, is it not good practice to delay a little? The supposed liability of myomata to malignant change, Lusk thinks—and he gives reasons for his view—has clinically not much weight. Of the palliative measures, curetting furnishes the greatest number of disappointments. The ligature of the uterine arteries has been followed by shrinking of the tumours and cessation of hæmorrhage in a number of cases too great to be ignored. He asks whether sufficient attention has been paid in America to the enucleation of fibroids by the vagina, compares the methods advocated by Chrobak and by Péan, and relates some of his own experiences favourable to the former plan. Péan's operation—*i.e.* separating the cervix from its attachments, and then cutting it open and pulling down so as to make the tumour visible—Lusk thinks little less dangerous than hysterectomy. [I endorse Lusk's opinion as to the value of enucleation by the vagina; the method I have practised is practically the same as Chrobak's.] Where hysterectomy is required, Lusk thinks that the vaginal operation should, where practicable, take precedence

of the abdominal. The newer devices for approximating the edges of the abdominal wound do not prevent ventral hernia. Lusk quotes statistics showing eight deaths in 388 cases, or 2·1 per cent. But when the tumour exceeds in size a child's head, it is safer to attack it from above. When the tumour is of medium size, the operation of castration is a legitimate one, although during the last two years it has been the fashion to discredit it. Lusk quotes statistics showing that in nearly all castration is successful in restoring the patients to health. It should not be done in the case of large tumours, nor in cystic growths; and its value is doubtful in the case of tumours low down in the uterus fed by the uterine arteries; nor should it be attempted when the presence of adhesions prevents the operation from being complete. Lusk quotes the experience of Martin and others of enucleation by the abdomen, with a mortality of 11·5 per cent., and concludes that it is not wise to attempt enucleation in pregnancy, nor in tumours which involve the uterine cavity to any considerable depth. However successful these different modes of treatment, there will always remain cases in which the size of the tumour, the presence of cystic degeneration, the multiplicity of the growths, and the situation of the growth in the pelvic cavity make it necessary to remove the uterus from above. The extraperitoneal treatment of the stump was for a long time the favourite. It is easy, there is little shock, and, with complete asepsis, recovery is to be expected. It has been abandoned mainly on account of the frequency with which small fistulæ were found by some of its leading advocates to remain after convalescence, and yet there is not agreement as to what should replace it. Complete hysterectomy is a more severe and mutilating operation than supra-vaginal amputation. We await reports of the late histories of patients in whom the stump has been treated by the retro-peritoneal method.

### **13. The results of oöphorectomy for fibroids.**

**Hermes** (*Arch. für Gyn.*, Bd. xlviii.) contributes an article on this subject, based mainly on the experience of **Fehling** and **Kaltenbach**. He quotes the very different opinions of different gynæcologists about this operation. Martin thinks it no longer justifiable; while Olshausen says that increasing experience leads him to value it more highly. First as to the death-rate. Hermes has collected 312 cases of this operation by different German operators, and finds among them twenty-eight deaths—a mortality of 9 per cent. Sixteen of the deaths were *due to septic peritonitis*, a preventible disease. The results of *successful oöphorectomy* are the attainment of two things—the



menopause and the shrinking of the tumour. The menopause was brought about by the operation in 78·4 per cent. of the cases. If those cases in which there was reason to think that some ovarian tissue was left behind are deducted, the results would be better; but Hermes thinks that to judge fairly of the results of the operation all cases ought to be taken together. Shrinking of the tumours followed the operation in 94 per cent. The author quotes other statistics, in which the proportion in which the menopause was established was from 82 to 97 per cent., and the proportion followed by shrinking of the tumours from 90 to 97 per cent. In two cases reported by Hermes, although some ovarian tissue was left behind at the operation, the tumours shrank. In another, after oöphorectomy, hæmorrhage recurred for a year and then stopped; but two years afterwards the tumour began to grow and hysterectomy had to be done; microscopic examination proved that ovarian tissue had been left behind. In this case growth continued although the menopause was brought about; in six others the tumours shrank although hæmorrhage continued. And the case of especial interest was one in which, for hæmorrhage, the cervix was dilated and the curette used, without benefit, the tumour not being capable of removal. Oöphorectomy was then done without the slightest benefit. Three years afterwards the tumour was found bulging at and thinning the os uteri, and was enucleated by the vagina. In thirty-one of the cases reported by Hermes the ovaries were carefully examined after removal, and only in two cases were they healthy, cystic degeneration being the change most frequently noted.

#### **14. Total extirpation of the uterus by the vagina for myoma.**

Berner, one of Prof. Leopold's assistants, gives an account of this operation in his practice (*Geburtshülfe und Gynäkologie*, von Prof. Leopold, Band ii.). In cases of uterine myoma in which (1) after all medicinal treatment has failed, and health and life are threatened from hæmorrhage, pain, pressure effects, or inflammatory or degenerative change; (2) examination under anæsthesia shows that the ovaries are too fixed, and therefore cannot be removed; (3) the patient's general condition is too bad for laparotomy, Leopold now prefers total extirpation by the vagina. The essential condition is that the tumour shall not be larger than a child's head.

The following are the main points in the method of treatment:—The greatest care is taken to get the patient as well nourished as possible before operation. If the pulse is very small, 9 or 13 oz. of saline solution is several times injected under the skin of the

infra-clavicular fossæ. (1) Antiseptic precautions are of course used. (2) If the vagina be narrow, it is enlarged by a long, deep incision on the left side towards the ischial tuberosity ; a retractor pressed down upon this both exposes the cervix and stops bleeding. Bilateral incisions are not needed. The single incision must be a free one. (3) The bladder is emptied, and its situation ascertained with the sound. (4) The vaginal portion is held with a volsella, a circular incision made through the mucous membrane round it, and then bladder and cellular tissue (with ureters) stripped off with the fingers. (5) Douglas's pouch is now opened, a thread put through the hinder serous fold and held with forceps, the uterus and parametria explored with the finger, and the vessels going to the uterus secured by ligatures passed with an aneurysm needle. Then by cutting the uterus is freed from the cellular tissue. (6) Now the cervix is pulled down so as to make the tumour accessible. According to whether the tumour is in the anterior or posterior uterine wall, the cervix is split either in front or behind till the lower part of the tumour is reached. The tumour is then detached from its capsule with the finger as far as possible, the capsule being incised if needful. According to its size the tumour is either extracted entire, or a bit of it is partly cut away, and then, before finishing its detachment, a bit higher up is seized with forceps, so as to keep the tumour under control, and then the lower bit is cut off. Thus, as Berner puts it, the operator climbs from below upwards and gets away the tumour. (7) Now the uterine walls fall together ; its size is so lessened that it is easily pulled down further and its attachments are easily ligatured. (8) Lastly, the uterus is removed, and the serous folds brought together by a stitch. The vagina is plugged with gauze ; the lateral incision is sewn up with closely-placed stitches. Two things are important during the operation : (1) Perfect administration of the anæsthetic, so that no prolapse of bowel may occur ; (2) Watching of the pulse, so that if it fail in volume, saline solution may be injected. The patient is kept in bed for three weeks after the operation, and discharged at the end of four weeks. Attention to the pulse is important, for thrombosis may be predicted if there be rise in pulse frequency without rise of temperature. Leopold has operated in this way on forty-eight cases, with three deaths. His last thirty have all recovered. Comparing this operation with oöphorectomy, he claims for it the following advantages: it is a less serious operation ; there is no risk of ventral hernia. Leopold has seen no bad after-results, either as to sexual feeling *or in other ways*. [If the tumour is removed, why not be content *with that* ? Why rob the woman of her uterus ?]

**15. Anterior colpotomy.**

**Martin** (*Monats. für Geb. und Gyn.*, 1895), after briefly referring to the history of the subject, describes his own method of performing this operation. The cervix uteri is pulled down by a volsella, and, by another inserted just below the urethra, the anterior vaginal wall is pulled down and made tense. Then Martin makes a median sagittal incision through the anterior vaginal wall. If this does not give quite room enough, he makes two small transverse cuts at the lower end of the incision. The vaginal wall is then separated to right and left, so as to free the cervix uteri and the bladder. This is done more easily if the uterus is fixed with a sound. The fingers are usually sufficient. Next the vesico-uterine peritoneal fold is snipped through, and the slit widened with the fingers to an extent corresponding to the breadth of the uterine body. Then Martin places one claw of a volsella on the vesical fold of peritoneum and the other on the vagina, and in this way shuts the bladder and ureters off from the field of operation; it is then held aside by a retractor, which, at the same time, acts as a reflector. The uterus and its appendages now lie plainly visible to the operator. There is hardly any hæmorrhage. What is necessary for the disease present is now done to the uterus or its appendages. The uterine adnexa are next first returned into the peritoneal cavity, then the uterus itself. The vaginal wound is then sewn up, the uterus being drawn against the wound and included in the sutures. Martin inserts four to six deep sutures, going through the uterus, and a continuous catgut suture uniting the vaginal mucous membrane. Bleeding is very slight. Martin has never injured a ureter. All his ninety-eight cases have recovered without fever. He has once wounded the bladder while suturing the incision; but after nineteen days the patient had regained continence of urine. Many patients suffered for a time either from retention of urine or from bladder irritation; but all ultimately got quite well. In all the uterus remained fixed in a position of anteversion. In fifteen of the ninety-eight the operation was done for myoma, the tumours, large or small, being removed—shelled out of their beds, the gap in the uterine wall being closed by suture in stages. Tumours larger than the fist are unsuitable for removal by this method. In fourteen of the ninety-eight the operation was done for movable retroflexion, and in eight others for prolapse. In such cases it is indicated only when treatment by pessaries has failed and the displacement is affecting health. In the prolapse cases the operation was combined with posterior colporrhaphy. Only three of these cases have been watched longer than six

months. One of them still complained of inability to work. Most of Martin's anterior colpotomies—viz. forty-three out of ninety-eight—were done for perimetric adhesions. In seven out of the ninety-eight enlarged ovaries were removed, and in six of the ninety-eight tubal swellings. In all the cases which required other treatment than anterior colpotomy such treatment was carried out. In one case of cancer in which the possibility of extirpation was doubtful anterior colpotomy was done and the pelvic glands were explored. These being found unaffected, the cancer was removed. In cases such as those described, Martin thinks that anterior colpotomy is an addition to our therapeutic resources. It leaves no abdominal scar, there is little hæmorrhage, and injuries to parts not involved in the operation can be avoided.

#### THE SURGICAL TREATMENT OF UTERINE DISPLACEMENTS.

This subject continues to engage the attention of gynæcologists abroad. I quote first a general survey of the present state of our therapeutic means against these annoying conditions, and then papers dealing with special operations.

#### **16. The treatment of retro-deviations of the uterus.**

Olshausen (*Zeit. für Geb. und Gyn.*, Bd. xxxii.) writes on this subject. Treatment by pessaries, he says, cannot be done without, but is falling into the background. The modes of treatment lately added to our resources are: the massage of Thure-Brandt; breaking down adhesions after the manner of Schultze; Alexander's operation; ventral fixation and vaginal fixation. He divides retro-deviations into five classes: (1) Cases of puerperal origin, with no other complication than hyperplasia; (2) cases without complication in the virgin; (3) retroversion in the virgin, due to shortness of the anterior vaginal wall—one of the rarer causes, but commoner, Olshausen thinks, than is believed—the condition being really defective development of the vagina; (4) cases with disease of the uterine appendages; (5) cases with adhesions, but without disease of the appendages. There are other causes of retro-deviation; but from the point of view of treatment, Olshausen thinks the above is the most practical classification. In group 1 he says the choice is between pessaries and vaginal fixation. His experience does not yet enable him to judge as to the duration of the results of the last-named operation. The pessary he prefers is Thomas's, of vulcanite or celluloid, with a thick posterior end. In group 2 a pessary is seldom effective, *and vaginal fixation* is preferable. He does not believe in *massage*. For group 3, surgical treatment, vaginal or ventral

fixation is the only suitable measure ; but Olshausen has not yet treated a case by either method. In group 4 the disease of the appendages is the principal thing, not the displacement. The fifth group he thinks the most important. Massage is useless, and may do harm. Schultze's method of breaking down adhesions seldom succeeds. Olshausen has not done ventral fixation in more than about one in 200 of the cases of retro-deviation under his care—only in cases in which all other means had failed. Ventral fixation of a mobile uterus with our present methods involves hardly any risk to life. Olshausen is entirely satisfied with the results. The symptoms were quickly and permanently relieved. He has observed the after-course in some cases for over four years.

### **17. Ventral fixation of the uterus.**

This subject was discussed at the Berlin Obstetrical Society. Czempin (*Zeit. für Geb. und Gyn.*, Bd. xxx.) described a method of operating without opening the peritoneum. He performs it in cases of retroflexion in which the uterus is movable and pessaries do not give relief. He first passes a special sound, designed by himself for this operation. Then, the bladder being emptied, the patient is placed in the raised pelvis position. The bladder is thus below the pelvic brim, and the intestines sink towards the diaphragm. The operator then cuts through the linea alba down to the peritoneum. The uterus is next pushed up by the sound till it can be plainly felt through the peritoneum. Guided by touch, Czempin inserts two silk sutures, running obliquely, and crossing one another at the fundus. These are removed on the tenth day, and the patient gets up on the eleventh. Czempin has performed eleven operations, all successful, but the cases have not yet been watched long enough for judgment upon the final result.

Flaischlen during the last five years has performed ventral fixation forty-five times. One patient died from the bursting of a pyosalpinx during the operation. In all the rest the uterus has remained in good position. The cases have been watched for periods of five years or less. The only failures have been that in some cases, notwithstanding that the uterus was fixed in good position, hysterical and nervous symptoms were not relieved. The author refers to failures to procure permanent fixation in the practice of others. He thinks the main cause is the use of unsuitable suture material, such as catgut. Silk is the proper suture. He removes the stitches on the sixteenth day. Four of his patients became pregnant, went through pregnancy without trouble, and the adhesion persisted after delivery. One of them developed prolapse of the posterior vaginal wall, but the uterus

remained high up. He attributes the benefit experienced, not alone to the altered position of the uterus, but to the removal of tension from the pelvic peritoneum and ligaments. He advocates the operation when the uterus is fixed in retroflexion. In the discussion, **Fritsch** mentioned a case in which the uterus was fixed in retroflexion, and he was unable to free it from adhesions. He therefore fixed the abdominal wall to the uterus, with the result that after some time the traction of the abdominal wall lifted up the uterus, stretching the adhesions, and the patient was cured. Several speakers expressed themselves as unable to see the advantage of not opening the peritoneum. The general tenor of the discussion was to show the great benefit obtained by the operation.

### **18. The cure by vaginal operation of retroflexion of the uterus.**

This method of treatment seems to be so much practised in Germany that I think it worth while to give some account of it, although I myself think little of its value. **Dührssen** (*Arch. für Gyn.*, Band xlviii.) reports 207 cases of operations of this kind. The operation consists in first pulling down the uterus by a volsella attached to the cervix. Then the bladder is separated from the cervix. The fundus uteri is then reached, either by anteverting it with a sound (the extraperitoneal method) or by opening the vesico-uterine peritoneal pouch and reaching the fundus with the fingers. It is then stitched to the vagina, the first stitches being put in low down and used to pull the fundus so that it is still more accessible. The intraperitoneal method is the one which **Dührssen** prefers. At one time he used silk ligatures and cut them short, sewing the vaginal mucous membrane together over them. But he found that sometimes the sutures wandered into the bladder and became nuclei of calculi. So now he uses catgut, leaves the ends long, and removes the sutures six or eight weeks afterwards. The patient is kept in bed for eight or ten days following the operation. Only one of **Dührssen's** operations proved fatal—a mortality of .5 per cent. In this case the uterus was adherent, the adhesions were broken down, and the patient died from peritonitis. The proportion of cases in which the uterus remained fixed in a position of ante-flexion was 71 per cent. When relapse occurred, it took place usually within nine months, so that persistence of ante-flexion for longer than nine months **Dührssen** considers as cure. In twenty-four cases pregnancy took place within a year. Of these, *thirteen* went to term, six aborted, and five were pregnant when **Dührssen** wrote, but had not reached term. It does not therefore

seem as if Dührssen's operation had done much to diminish the liability to abortion. In six cases menstruation which was too profuse became less in quantity and duration.

Dührssen prefers his operation to ventral fixation on the following grounds :—(1) Less risk. (2) No hernia possible. (3) No bandage or belt needed. (4) Convalescence quicker. (5) Less anxiety. (6) Less local suffering. (7) Normal condition attained. He recommends his operation of vaginal fixation for the following cases :—(1) Retroflexion in which any vaginal operation has to be done, such as curetting, operations on the cervix, colporrhaphy. (2) Cases in which a ring pessary, on account of its pressure in perimetritic adhesions, as a displaced and fixed ovary, cannot be worn. (3) Retroflexion with fixation. (4) Cases in which a patient cannot remain under medical supervision while being treated with pessaries. (5) Cases in which patients with mental depression or hysteria feel dependent upon a doctor.

I am not impressed in favour of this operation, because (1) in many cases retroflexion causes no symptoms whatever. In the healthy it is only found out by accident. In the unhealthy it is an unimportant accompaniment of other disease. In many of Dührssen's cases I think the benefit may have been due to other treatment practised at the same time. (2) In most cases of retroflexion causing symptoms the symptoms are due to descent. Dührssen's operation will make the uterus come down leaning forwards instead of leaning back, but will not alter the fact of descent. (3) In nervous women with subjective symptoms it is very difficult to get accurate statements as to the effect of treatment on their health. From the reports of his cases it seems to me that Dührssen is easily satisfied as to the fact of improvement.

#### IV.—FUNCTIONAL DISEASES.

The last paper of which I have to speak is important in its bearing on so-called vicarious menstruation.

##### **19. The relation between menstruation and hæmorrhage from the stomach.**

Kuttner (*Berl. klin. Woch.*, 1895) says that in most text-books the common causes of hæmatemesis given are gastric ulcer and cancer of the stomach. But, says Kuttner, it would be quite erroneous to conclude that chlorotic girls who consult us for gastric troubles and give a history of hæmatemesis are therefore suffering from gastric ulcer. Great bleeding may take place into the stomach, and thorough examination of the whole digestive tract may fail to discover a cause for it. Hæmorrhage from the stomach connected



with menstruation has long been known ; it has been described as "vicarious menstruation" and looked on with scepticism. But there can be no question that periodic hæmorrhage from the stomach does occur. On the "vicarious" theory such hæmorrhage ought to be associated with absent or scanty menstruation. It is not at present recognised that such hæmorrhage may occur when menstruation is both present and copious. Kuttner has known hæmorrhage from a gastric ulcer occur at the time when menstruation ought to have occurred but did not. When menstruation occurred, bleeding did not. Hæmatemesis with absent menstruation occurs in young chlorotic girls, in elder women about the time of the climacteric, and in women of any age during amenorrhœa from pathological causes, but never during the physiological amenorrhœa of lactation. But Kuttner thinks that gastric hæmorrhage accompanying profuse menstruation is even commoner. He relates cases, including one in which bleeding was detected by examining the contents of the stomach, although there was no vomiting. Such vomiting he explains by a reflex congestion, starting from the genital organs, of the mucous membrane of the stomach, which is thus made liable to bleed from slight causes. The well-known occasional association of chlorosis with a tendency to bleed is sufficient explanation why these gastric hæmorrhages should be seen in chlorotic girls. The hæmorrhage is not vicarious; it does not take the place of menstruation. The question arises whether in such cases a gastric ulcer is not present, for the occurrence of gastric ulcer without symptoms is a well-known fact. Kuttner thinks not, because in some of the cases treated by him treatment such as cures gastric ulcer had no effect. These menstrual stomach hæmorrhages are never profuse enough to endanger life. They may be without symptoms, or they may lower the nervous tone and thus lead to nervous symptoms. The vomiting may be preceded by faintness, weakness, feeling of fulness, and nausea symptoms which the vomiting relieves. Kuttner gives directions which I forbear quoting, as they are not specially suitable for this section of the "Year-Book," for the identification of the blood by spectroscopic and chemical examination of the stomach contents, and for the diagnosis of the kind of hæmorrhage by exclusion of all the other morbid conditions which might account for it. The treatment of such hæmorrhage should be that of hæmorrhage from an ulcer of the stomach.

# MIDWIFERY.

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## I.—PHYSIOLOGY.

Year by year it becomes increasingly difficult to bring forward any new departures or considerable addition to our knowledge on the side of diagnosis or treatment, but it is equally true that each year we are able to bring forward evidence which goes far to explode old accepted fallacies, or to give certainty to truths which have been suspected, but not proven. Thus, in the following paper on the Temperature, Pulse, and Respiration in the "Lying-in State," Messrs. Probyn-Williams and Cutler have thoroughly revised our knowledge by their accurate observations. In the same way, Bidder has certified to us that our ideas that labour was more dangerous or attended by more complications in elderly primiparæ are not borne out by actual clinical observation. On the other hand, papers such as that by Kroenig, on Vaginal Secretion, or by Broërs, on Involution of the Uterus after Labour, are a distinct addition to our knowledge of the subject, and prove to us how much there is to be learnt by careful research and scientific experiment in the domain of midwifery.

### **1. Old primiparæ.**

**Bidder** (*Berichte aus der Universitäts-Frauenklinik zu Dorpat*, 1894) has published a monograph on the subject of Old Primiparæ. He finds that primiparæ over forty are common in Dorpat, and from his own observations he notes no special anomalies in pregnancy. It seems, however, that kidney complications and eclampsia are relatively frequent. Abnormal presentations are not more common than in younger mothers. The duration of labour is distinctly longer, but only in the

first stage. Operative interference, especially forceps, is frequently needed. Ruptured perineum is not more frequent than in primiparæ generally; the same applies to complications in child-bed. Severe puerperal diseases and mortality therefrom are not more common, nor is the mortality among the children of old primiparæ specially high. In fact, the old theory that old primiparæ run great risks is a mere piece of *à priori* reasoning.

## 2. Twin pregnancy.

Hellin (*Centralbl. f. Gynäk.*, No. 43, 1894) has made some biological researches into the question of the physiology of twin pregnancy. Twins and triplets in naturally uniparous animals are, as a rule, the effect of simultaneous rupture of several follicles. This accident is the result of an unusually large number of ova in the ovary. This explains why the mothers of twins are usually very prolific. Multiparity and twin-bearing tendencies are only variations of the same principle. Two-yolk twin pregnancy is atavistic.

## 3. Signs of foetal maturity.

Frank (*Archiv f. Gynäk.*, xlviii., part i., 1894) publishes a series of tables on the alleged proofs of full-term gestation, and the results are essentially negative, shaking many well-known opinions. The development of lanugo and the length of the nails are in themselves of little value. The temperature of the new-born child is a fallacious sign. When the circumference of the head is under 32 cm. (12.48 inches) the child can hardly be mature, but premature children may have heads of a greater circumference. The child's sex and the number of previous pregnancies should be taken into account. Frank warns us against supposing that a mature foetus has necessarily been the full term in its mother's uterus.

## 4. Bactericidal properties in the vaginal secretion of pregnancy.

B. Kroenig (*Deutsche med. Wochensch.*, No. 43, 1894) claims to have demonstrated that not only is the vaginal secretion in normal pregnancy free from pathological germs, but that it has a distinct germicidal power. Experiments were first made with the pyocyaneus, then with staphylococcus and streptococcus. The streptococcus was killed earliest, but the vagina was found clear in two days at the longest in every case. Kroenig further shows that syringing the vagina with antiseptic solutions partially or completely destroys its germicidal powers. Hence he concludes *that prophylactic syringing should be given up, even in pregnancy with gonorrhœal infection.*

### 5. Some observations on the temperature, pulse, and respiration during labour and the lying-in.

Probyn-Williams and Leonard Cutler contributed a paper on this subject (*Brit. Med. Journ.*, Feb. 16, 1895) at a meeting of the Obstetrical Society. They first considered the effect of labour on the temperature, pulse, and respiration. *Temperature*:—They found that their results coincided with those of Giles published in the *Trans. Obst. Soc.*, 1894. *Pulse*:—(1) Rate. They considered the low rate of the pulse after delivery, as given in the text-books, exaggerated. In 100 cases of normal labour they found that in 76 the rate was diminished, in 11 it remained stationary, and in 13 it was increased after the end of the third stage. In this series the average decrease between the rates during the first stage and half an hour after the end of the third was 11 beats per minute—from 89 in first stage to 78 after delivery. Parity and the length of the labour had some influence on this fall; and after the administration of chloroform, it was common to find the pulse remaining high after delivery. In 19 cases of *post-partum* hæmorrhage there was an average rise of 19 beats per minute (78 during labour, 97 after delivery). (2) Tension was usually above normal during labour, but was occasionally low, notably in one case, in which delivery was followed by considerable hæmorrhage. *Respiration*:—After delivery there was, on the average, a fall of 1 respiration per minute (23 during labour, 22 after delivery). This decrease was not observed after chloroform. *Lying-in*:—*Temperature*. The writers found that the average temperature of 100 cases varied between 98° and 99°, being higher in the evening than the morning. The highest average temperature was reached on the first day, and was higher in primiparæ than in multiparæ. Rupture of the perineum had no appreciable effect on the temperature during the puerperium. *Pulse*:—(1) Rate. They did not agree with the statements in the text-books that the pulse was normally very slow during the first week, but found that the average rate of 100 cases was never lower than 72. The pulse-rate was faster in the morning than in the evening. (2) Tension. In a few cases the tension was diminished by delivery, but in the majority it was increased. Whatever might be the tension of the artery during labour, and whether it rose or fell after delivery, within twenty-four hours it had always increased so much that it was at least as great as, and generally greater than, the tension during labour. This increased tension might persist throughout the puerperium, and commonly lasted longer in multiparæ than in primiparæ. *Respiration*:—The rate of respiration was found

to vary between 20 and 22 per minute. It tended to follow the pulse-rate in being higher in the morning, and not the temperature, which was higher in the evening.

#### **6. Involution of the uterus after labour.**

**Broërs** (*Virchow's Archiv*, vol. cxli., part i., July, 1895), as the result of experiments, finds that the first cause of diminution in volume of the muscle cells is a discharge of glycogen from the hypertrophied muscular fibres; at the same time the oedematous intermuscular connective tissue parts with much of its water through absorption. For the first few hours these changes alone constitute involution. The muscular coats of the arteries share in the loss of glycogen. At the end of the first day true fatty degeneration can be detected in the muscle cells. After a few days this well-known process alone finishes the involution, no more glycogen being excreted.

#### **7. Normal expulsion of placenta.**

**Teuffel** (*Monatschrift für Geburtshülfe u. Gynäk.*, Feb., 1895) reports twenty-five cases in which he allowed the placenta to be expelled spontaneously. In thirteen cases the placenta was completely inverted (Schultze's theory), in eight not inverted, but rolled up and presenting by the lower margin (Duncan's theory), and in four incompletely inverted. In all the eight which were expelled in the manner Matthews Duncan held to be normal, the rent in the membranes lay close to the border of the placenta. In the thirteen cases of inversion the rent was found to be central (as far as possible from the placenta) in nine; in three the tear was between the centre and the placental margin. In the four cases of incomplete inversion the tear was never central, but eccentric in three and marginal in one case. Teuffel thinks that when the marginal attachment of the membranes is intact the placenta is pressed forwards, and, assuming a spherical form, is expelled in the inverted position; but if the placenta meets with less resistance at one edge, where the membranes are rent, or is manipulated by the obstetrician's hand outside the uterus, it is expelled as Duncan describes.

## **II.—PATHOLOGY.**

It is interesting to note, when an observer calls attention to some hitherto unrecognised pathological condition, how soon numerous instances of this disease are found, and what was considered a pathological curiosity takes its place among the *group of fully established diseases*. Some few years ago deciduo-carcinoma of the uterus was hardly known, and its existence was

doubted by some good observers. Now, year by year, numerous instances of this morbid change are constantly brought before us, and already quite a considerable literature of the subject has been collected. The following cases form an interesting group for study :—

### **1. Endometritis in pregnancy: hydatiform mole.**

**Veit** (*Zeitschrift f. Geburtshülfe u. Gynäk.*, vol. xxxii., part i., 1895) continues Emanuel's researches, and dwells on the fact that bacteria are found in the diseased endometrium in pregnancy. This probably indicates that endometritis existed before pregnancy. In Emanuel's case of hydatiform mole, microbes were also discovered. This change in the chorion both the observers believe to be the result of endometritis in pregnancy. The mole may be discharged without further ill-result, but in some cases a few vesicles left behind may undergo malignant changes and perforate the uterine wall.

### **2. Deciduo-sarcoma of uterus.**

**Menge** (*Zeitschrift f. Geburtshülfe u. Gynäk.*, vol. xxx., part ii., 1894) relates a case, in an exhaustive monograph on malignant degeneration, of decidual relics after gestation. In December, 1892, a woman, aged thirty-five, was delivered at the sixth month of a big hydatid mole. Sharp metrorrhagia set in six months later, and on dilating the uterus, a hemispherical mass the size of a bean was detected in the anterior uterine wall. It was removed by the curette. On August 3rd, 1893, fresh hæmorrhage occurred. After plugging and the use of the curette, some soft masses were removed. They were cancerous, the epithelial elements being of the decidua-cell type. On August 11th Menge performed vaginal hysterectomy. The operation was very difficult, owing to there being metastatic deposit in the vaginal vault. On November 21st, three-and-a-half months after, small deposits were detected in the vaginal wall near the vulva. They grew rapidly, causing fœtor and œdema of the labia. The patient died six months after the operation, and thirteen after the expulsion of the hydatid mole. Menge related a somewhat similar case of a woman aged eighteen, who was delivered of a hydatid mole in the sixth month, and who six weeks after returned with two hard bodies, as big as hazel nuts, in the uterine wall, which were scraped out with the curette.

### **3. Malignant deciduoma.**

**Hartmann and Toupet** (*Bull. de la Soc. Anat. de Paris*, Oct., 1894) describe a case of this disease. The patient, aged twenty-five, married at twenty-three, had borne a child eighteen months before admission into the hospital. Menstruation occurred

during the last six months of lactation, then ceased for three months after a very free hæmorrhage. There was then an almost continuous oozing, till at the end of six months after the beginning of the free hæmorrhage another attack set in with rigors, and lasted a fortnight. The uterus was dilated for three days, when placental relics were removed. Temperature was then over 100°. The patient went on bleeding for a month, when the uterus was found to be enlarged. Hysterectomy was proposed, but the patient, having had another severe attack of bleeding, followed by the expulsion of a mass resembling placental tissue, died. Two hemispherical masses were found projecting from the surface of the uterus, and, on section through the uterine wall, were found to be continuous with two pieces of placental relics. The microscope proved that the masses in the wall were placental tissue derived from the relics, and undergoing malignant degeneration.

#### **4. The later evils following retention of placental relics.**

**Hartmann and Toupet** (*Annales de Gynéc. et d'Obstet.*, April, 1895) write on the changes which non-septic fragments of placenta may undergo when left attached to the uterine wall. They are: (1) simple sclerosis; (2) benign deciduoma—the true placental polypus; (3) hydatiform mole; (4) malignant deciduoma.

#### **5. Vesicular mole followed by malignant changes.**

**Marchand** (*Monatsh. f. Geburtshülfe u. Gynäk.*, June, 1895) tabulates thirteen cases of deciduoma malignum, and no fewer than twelve of malignant growths following the development of vesicular mole. It appears that a case was noted in 1795; but the first described was in 1883, by Guttenplan, and ten out of the thirteen have been reported since the beginning of 1890. Eleven died less than two years after the vesicular mole was removed. In one there was no after-history beyond the seventh week. In the remaining case the uterus was removed through the vagina, and three months later the patient was doing well. Marchand is not at all certain as to the precise homology of malignant deciduoma as a tumour. It differs from cancer in many ways, though it is of epithelial origin.

**Klien** (*Archiv f. Gynäk.*, vol. xlvii., part ii., 1894) relates a case of malignant change in decidual relics in the uterus after labour, a disease which has been frequently detected in late years. The patient was twenty-seven. The period was last seen in November, 1892. On January 26th, 1893, severe flooding set in. On March 3rd a large vesicular mole was expelled, and flooding and



pain continued for some time. The curette was used on May 15th. Left parametritis followed. In September the patient became very ill, the uterus being universally enlarged, and deciduoma malignum was diagnosed. It was complicated with left parametritis and disease of the left appendages. She was admitted into hospital very ill with rigors, and died of hæmorrhage on November 7th. A remarkable pathological complication was discovered. There was angio-sarcoma of the vagina, with secondary deposits in the uterus and both lungs. The uterus contained a mass of new growth, which was described by the pathologist as "deciduo-sarcoma uteri giganto-cellulare."

So much interest is always attached to the presence of albuminuria in pregnancy that any communication to our knowledge of that difficult subject must necessarily be welcomed. The following article on Retinitis Albuminurica in relation to induction of premature labour is of especial interest as representing the views of one who, having special knowledge of ocular affections, is not engaged in the routine of midwifery work. If space permitted, it would be easy to bring forward numerous cases showing how rapidly the retinal affection advances while pregnancy exists, and how speedily the process is arrested by the termination of gravidity.

#### **6. The relation of retinitis albuminurica to the induction of premature labour.**

Simeon Snell (*Brit. Med. Journ.*, June 22, 1895), ophthalmic surgeon to the Sheffield Infirmary, read a paper on this subject. In the albuminuria of pregnancy retinitis is of less grave import as regards prognosis of life, but as far as vision is concerned it is attended with very serious results. Culbertson (*Amer. Jour. Opth.*) finds that 23·33 per cent. of recorded cases have terminated in blindness, and that in 58·25 per cent. partial recovery only has taken place, only 18·54 per cent. having recovered sight. Though appearances in the fundus are usually well marked, there may be blindness without ophthalmoscopic signs. Snell, after describing a case in which induction was twice performed, went on to say: (1) That for retinitis appearing before or about the sixth month induction of labour should be recommended; (2) that when it shows itself only in the last few weeks it may often be unnecessary, but that each case must be judged by the severity of the affection; (3) that a case in which retinitis has shown itself in one pregnancy should be carefully watched, and treatment adopted accordingly, as a recurrence of retinitis would probably destroy the vision preserved from the previous pregnancy.

**7. Puerperal eclampsia.**

**Gener** (*Centralbl. f. Gynäk.*, 42, 1894) publishes a report of cases of puerperal eclampsia occurring in the Cologne Maternity.

In 5,000 labours there were 50 cases of eclampsia; 26 did not have fits till after admission; 42 of the patients were primiparae. In 5 cases there was twin labour. The eclampsia occurred in 6 cases during pregnancy, in 7 not till childbed, and in 37 during labour; 3 out of the 6 cases where the fits occurred during pregnancy passed through normal labour and childbed; in the fourth convulsions occurred during birth; in the fifth during childbed as well. The fits ceased entirely after delivery in 18 cases, and steadily diminished in 10. Twelve mothers died—10 from eclampsia, 1 from nephritis, and 1 from sepsis. At the necropsies acute yellow atrophy of the liver was discovered in one case, and extensive subcutaneous hæmorrhages in another. The greatest number of fits in any of the fatal cases was 50, in any of the survivors 17. Out of the 55 children in the 50 labours 16 were born dead (5 putrid); 13, including 10 premature, died within the first few days of the birth; of the 3 not premature 1 had hydrocephalus, 1 congenital stricture of the œsophagus, and 1 atelectasis. In 34 labours the resources of art were employed: 1 Cæsarean section on a dying patient; 2 induced premature labours; 3 extractions (breech cases); 2 turnings—transverse presentations; and 26 forceps. Gener advocates speedy artificial delivery, cautious administration of morphine, diaphoresis, and quiet. Pilocarpin is useless, chloroform not always safe.

**Sir John Williams, Bart., M.D.** (*Practitioner*, Jan., 1895), in a paper on Puerperal Albuminuria and Convulsions, states his belief that there are some cases of puerperal convulsions in which, although albuminuria in a severe form is present, yet the albuminuria is not the whole of the disease, nor the whole of the condition giving rise to the convulsions. In these cases the disease is sudden in its onset, rapid in its progress, and generally fatal in its issue. He separates from this class of cases that class of puerperal convulsions which is met with occasionally in cases of chronic Bright's disease. In support of his view Sir John Williams describes fully two cases, one of which recovered. The first was a primipara, aged twenty-four, whose labour was expected in July, 1880. On March 4th she complained of pain in the epigastric region. On the following day the conjunctivæ were found to be yellowish, and there was tenderness over the liver. A calomel pill was prescribed. The urine, examined on the 6th, contained three-fourths albumen, some bile and leucin,

some granular casts, but no blood-cells. On this morning she became blind and had a fit, followed in an hour's time by a second one of a typically epileptiform character. She was unconscious, breathing heavily, with dusky face and dilated pupils. There was no œdema of hands or feet. Enemata of bromide and chloral were administered every two hours. It was agreed to induce labour, and hot vaginal douches proving ineffectual, a tent was introduced into the cervix. On the morning of the 8th she was delivered of a dead fœtus of five-and-a-half months' growth. Her temperature during this time varied from 97·6 to 98·4. The pulse was 120 a minute, small and wiry, respirations thirty to forty. After the birth of the child the albumen fell to one-half and soon disappeared, and she got rapidly well. During the second pregnancy greater attention was paid to the condition of the urine. It was examined twice a week from the third month, and no albumen was detected in it till the end of the sixth month. A trace was discovered on one day, and in twenty-four hours the urine was half full of albumen. During twelve hours at least of this time the patient suffered a good deal of distress, and at the end of twenty-eight hours symptoms were so severe as to call for induction of labour. During the third pregnancy still more attention was paid to the state of the urine, for it was examined twice a week from the second month, and night and morning from the beginning of the third month. No albumen appeared till the end of the seventh month. Then a trace appeared, and, almost immediately, it increased to one-half, associated with the symptoms preceding eclampsia. She was then bled, with the effect of obtaining complete relief. The albumen disappeared from the urine completely within twenty-four hours, and remained almost entirely absent for eight days. Then the old symptoms returned, and she was bled again, with equal relief to the suffering, and almost as good an effect on the urine. The improvement lasted for the week again. Then the old symptoms returned, together with albumen in the urine. She was bled again, and with relief; but the relief was not so complete nor so lasting as on the former occasions, for the albumen was not reduced to less than one-tenth, and the duskiess of the face, the pain and breathlessness, returned in the course of four days. She was bled once again, with relief, which lasted only for twenty-four hours. Then labour was induced. At the fourth pregnancy the patient was kept in bed after the sixth month, and there was no albumen till early in the ninth month. Ten days afterwards she was confined. Sir John Williams remarks that the rapidity with which the symptoms

premonitory of eclampsia and the appearance of albumen in the urine came on seem to point to some other cause for the convulsions than albuminuria. The tenderness over the liver, and the presence of bile and leucin in the urine, point to the participation of the liver. The effect of bleeding was very remarkable.

The second case was of a more severe character. The patient, aged twenty-two, one morning at 9 a.m., three days before she expected her confinement, vomited, and complained of severe pain in the epigastrium. At 9.30 she said she could not see, and ten minutes later she had a fit, followed shortly by another. She became comatose and slightly jaundiced. The fits continued. During the day she was bled, and some improvement followed. The urine became solid on boiling. The fits continued, and she died at 7.30 the next morning. After death the kidneys were found to be in the first stage of Bright's disease; the liver was enlarged, and presented disseminated spots of necrotic tissue.

#### **8. On the management of the pregnant woman suffering from cardiac disease.**

John Phillips (*Practitioner*, June, 1895) writes as follows:—Many women pass through their first pregnancy in spite of marked but compensated valvular disease, but frequently it is found that in later life abortion or premature labour occurs again and again. Fatal results are nearly twice as frequent in cardiopathic multiparæ as in primiparæ. During pregnancy the avoidance of fatigue, regulation of the bowels, with tonics such as iron, arsenic and strychnia, with ammonia and ether for syncopal attacks, should be the treatment. Digitalis or strophanthus is useful if symptoms of mitral incompetence set in. During labour the patient will feel easier in the sitting posture. Extraction of the fœtus should be performed slowly, and a 12-lb. sandbag laid over the fundus during the process. It is after labour that life is most endangered. *Post-partum* hæmorrhage should be rather encouraged than checked. Ergot seems contraindicated. Nitrite of amyl sometimes gives immediate relief. Hypodermic injections of strychnia are most valuable. Phillips says that the necessity for artificial abortion must be very rare, and that the weight of evidence is against the resort to induction of premature labour, the patient so frequently succumbing during the early days of the puerperium.

[In the above paper there would seem to be a tendency to question the frequency of hypertrophy of the heart in pregnancy, *but the author* seems hardly to have carried his observations over a sufficient number of cases to justify his conclusions. As a matter

of fact, it is, of course, highly probable that the very cases which admit of *post-mortem* investigation are instances of cardiac weakness, and therefore not suitable for illustrating the truth of his belief.—M. H.-J.]

### 9. Mollities ossium.

**Fehling** (*Archiv f. Gynäk.*, vol. xlviii., part iii., 1895) discusses this disease as a special disorder and a grave complication in pregnancy. He objects to Cæsarean section with removal of appendages, agreeing with Runge that Porro's operation should be performed in preference, the latter leaving one wound instead of three in the internal genitals, and being much easier and far safer. In progressive mollities in non-pregnant women the appendages should be removed if therapeutic means have failed. Cachexia is extreme in advanced cases, and tuberculosis is not rare in the last stages. Rossier, as the result of microscopical examination of the ovaries of patients suffering from mollities, finds that the only feature common to all specimens is extreme vascularity with hyaline changes in the cortical portion.

**Latzko** (*Wiener medizinische Wochenschrift*, Jan. 19, 1895), speaking of an experience of fifty cases, states that mollities ossium is associated with fertility. The total average fecundity was 4·9, and 1·75 at the time of the onset of the disease. Osteomalacia in these cases was originally diagnosed as rheumatism or paralysis; indeed, in its earlier stages, the disorder is easily overlooked. Rehner, in the discussion, stated that osteomalacia was very common in certain localities. Since 1881 he had observed about forty-five cases in Heidelberg. Most of the patients were lean, cachectic, poverty-stricken, and prematurely aged, but a third of the total were well-fed wives of flourishing tradesmen. Von Braun and Chrobak did not believe that osteomalacia was so frequent as Latzko's unusually large series might indicate. Von Winckel, however, relying on thirty years of observation, considered that Latzko's remarks pointed to the truth.

### 10. Salt baths in osteomalacia.

**Z. Pelezar** (*Sem. Méd.*, Oct. 31, 1894) has had excellent results from this treatment. He tried the method in eight women suffering from the disease in a fairly advanced stage. They were multiparæ, aged from twenty-five to forty-six, in whom the disease had commenced after confinement, and had lasted from two to eight years. The diagnosis was established by the mode of onset, chronic course, the pains, deformities of the skeleton, and the other symptoms, such as hyperæsthesia of the skin, exaggerated reflexes, paresis of the lower limbs without sign of cerebral or spinal lesion. In all the cases the treatment

consisted solely in the use of baths containing from 6 to 16 kilogrammes of sodium chloride, according to the constitution of the patient. In addition to the baths, lime-water was given in milk. Although in none of the cases were the hygienic surroundings quite satisfactory, the effect of the treatment was very marked. Relief was experienced even after the first few baths; after twenty or so pains ceased, and the power of movement was recovered. In from four to eight weeks the improvement was very great; in some cases even the bony deformities had partly disappeared. The author, in view of the small number of cases, hesitates to affirm that the treatment has effected a complete cure. He attributes the good effect of the baths to the improvement of nutrition and the stimulus given to metabolism by the baths.

### **11. Cholera and its influence on menstruation, pregnancy, labour, and childbed.**

Schütz (*Centralb. f. Gynäk.*, No. 45, 1895) treated 2,500 adult females during the epidemic at Hamburg. Uterine hæmorrhage occurred in one-third of the cases. The bleeding set in during the crampy stage, the non-gravid, like the gravid, uterus being stimulated by the poison, so that it contracts while the endometrium bleeds. Convalescence in non-pregnant women was slow, and attended with amenorrhœa. Out of 115 pregnant cholera cases twenty-eight were discharged pregnant and twenty-five died pregnant; twenty-two left after labour, forty dying. The mortality of the mother and the tendency to abortion are greater the later in pregnancy the patient is attacked. Next to small-pox no disease so surely provokes interruption of pregnancy. Cholera is very deadly to the fœtus at any age. Septic affections are more common in the puerperium. In half the cases milk was freely secreted. Nine women were admitted with cholera commencing in childbed. The mortality was 44 per cent.

### **12. Menstruation, gestation, and small-pox.**

Voigt (*Volkmann's Samml. klin. Vorträge*, No. 112, Nov., 1894) writes on the effects of variola. It causes, he says, congestion of the endometrium when the fever begins and when the rash appears; in consequence, menstruation and metrorrhagia appear in the non-pregnant. Half the cases of pregnancy in small-pox patients vaccinated in youth end in abortion or premature labour. The pregnant woman's condition is desperate in confluent or hæmorrhagic forms, and these two severe types are more frequent in pregnant than in non-pregnant women. Fifty-nine per cent. of patients delivered while suffering all-pox die. Nearly all the infants are lost. When an

epidemic occurs all pregnant women should be vaccinated, and infants, if born healthy, should also be vaccinated.

### 13. Malarial influence in abortion and sterility.

Arthur J. Weatherly (*Lancet*, Feb. 2, 1895) gives his experience in Africa, Florida, and India, and compares it with his English practice :—

						Confinements at term.	Abortions.
England	...	...	...	...	...	56	2
South Africa (malaria unknown)	...	...	...	...	...	35	2
Africa (unhealthy regions)	...	...	...	...	...	40	20
Florida	...	...	...	...	...	30	22
India	...	...	...	...	...	60	28

Weatherly noticed that in very many cases malaria showed itself only in the habit of abortion. He also observed that a larger proportion of women are sterile in malarial districts, and that the sterility becomes permanent after long residence, whereas after a short residence they bear children on going to a healthy climate. Weatherly quotes two cases of patients who, though sterile or miscarrying in the plains, went to full term in the hills. In Florida the influence of malaria is still more marked. A large number of women who have been in malarious countries, even if they do not abort, suffer very much more when pregnant at the times when their period would have come on than other women, and require very strict precautions as to recumbency, etc., at those times. In such cases quinine, instead of tending to bring about abortion, certainly tends to ward it off.

### 14. The acute infective diseases and abortion.

Klautsch (*Münch. med. Woch.*, Dec. 26, 1894) remarks that pregnancy is brought to an end by the death of the foetus, or, less frequently, by premature uterine contractions. The foetus may die owing to (1) deficiency in oxygen; (2) alteration in temperature; (3) direct transmission of the infection. These conditions may be combined. Premature pains may be caused by (1) increased body temperature; (2) altered blood; (3) changes in the uterine mucous membrane, as in endometritis exanthematica; or (4) toxins present in the blood. If the deficiency in oxygen occurs rapidly, the foetus dies; if more gradually, pains are induced. In typhoid fever abortion occurs in more than half the cases, and the foetus is generally born dead, death being more often due to transmitted infection. The abortion may be accompanied by much hæmorrhage, or by strong contractions and little hæmorrhage. Cholera is not transmitted to the foetus, death being here due to the altered blood, to an endometritis, to a diseased foetal placenta, and to temperature variations.



Hæmorrhage is profuse and contractions violent. In measles the foetus rarely dies. In severe malaria the foetus is more often born alive, but soon dies of malarial cachexia. In pneumonia the death of the foetus is not uncommon, and is due to asphyxia. Variola frequently kills the foetus ; yet many are born alive. As regards the pains, in variola the foetus may be expelled even during the suppurative stage ; in malaria, after the paroxysm ; in erysipelas, most often when the eruption appears ; in cholera, during the transition stage ; in influenza, soon after the onset of febrile symptoms ; and in pneumonia, on the third or fourth day.

### **15. Abortion: decidua vera intact.**

**Gottschalk** (*Centralbl. f. Gynäk.*, No. 25, 1895) showed, at the May meeting of the Berlin Obstetrical Society, a second month's ovum with the decidua vera intact. The abortion followed a railway journey. The membranes assumed the form of the uterine cavity, including the cervix. It could plainly be seen, however, on examining the decidua vera, that that membrane ceased inferiorly at the level of the internal os. Keilmann was in error when he made out that the vera lined the canal of the cervix. The vera in Gottschalk's case certainly assumed the form of the cervix, but that was owing to a hæmorrhage in the foetal membranes inferiorly, which caused them to bulge down as far as the os externum. The blood, on clotting, made a perfect cast of the cervical canal. The decidua vera, though shed entire, showed diffuse hæmorrhages all over its substance.

### **16. Phenocoll in pregnant women.**

**Titone**, of Palermo (*Rif. Med.*, Nov. 24, 1894), in view of the ecboic action of quinine, tried phenocoll in pregnant women suffering from malaria. He gave it in doses of  $1\frac{1}{2}$  gramme, divided in four cachets, in the Roman method—*i.e.* five, four, three, and two hours before a febrile paroxysm is due. In all the cases pregnancy went on to term without the uterine contractions which follow the administration of quinine to pregnant women.

### **17. Tonic spasm of the uterus as a cause of post-partum hæmorrhage.**

**Surg.-Capt. A. W. Leahy** (*Lancet*, Aug. 3, 1895), commenting on a paper by Dr. Gibbons on Tonic Spasm of the Uterus as a Cause of Post-partum Hæmorrhage, describes two cases of this condition. Both cases had had severe flooding at previous confinements, and in both cases the uterus contracted after delivery, but was somewhat irregular in form. The bleeding was profuse, and in gushes, did not yield to treatment, and only stopped when, *the patients having fainted from loss of blood, the uterus first*

relaxed and then contracted normally. Surg.-Captain Leahy points out that the uterus can be felt above the pubes perfectly hard, but not regularly contracted, and at the same time the existence of an actual cavity within the body of the uterus is plainly evident. If a third case should occur in his practice he would administer chloroform.

### III.—EXTRA-UTERINE FCETATION.

Cullingworth (*Brit. Med. Jour.*, Dec. 23, 1894) describes a case of advanced extra-uterine gestation in which he removed a living child, leaving the placenta and entirely closing the abdominal wound. In discussing the subject he points out that the placenta can only be removed at the time of the operation when the blood-vessels supplying it can be secured beforehand. Hitherto, when the child was not allowed to die before the operation took place, as was almost the recognised rule of practice not long ago, either the walls of the sac have been stitched to the edge of the abdominal wound, or the cord has been left protruding from the lower end. Tait, Bland Sutton, and others, have advised the complete closure of the wound, but Cullingworth claims to be the first to record a case in which this procedure was adopted. The operation was performed at the end of the eighth month of pregnancy. After the removal of the child, Cullingworth removed the greater part of the membranes. The cord was ligatured and cut off short, but was not allowed to bleed before the ligature was applied. The opening in the membranes was now partially stitched up, and after sponging the peritoneum and the amniotic cavity, the wound was completely closed, no drainage-tube being used. The operation lasted fifty minutes. The patient progressed favourably for twenty-four days, when symptoms of septic poisoning set in, and it was determined to remove the placenta. The patient died from the shock of the operation. Cullingworth remarks that though in this case absorption of the placenta did not take place as he had hoped, yet the result was, in his opinion, so far accidental that he should not hesitate to attempt this treatment again. Success depends on being able to keep the placenta aseptic, and where, as in this case, there are intestinal adhesions, there are sources of contamination beyond the operator's control. He would, in a second operation, allow the cord to bleed before ligaturing it, and would divide the cord closer to the placenta. He would also remove the amnion from the placental surface, and remove as much of the membranes as possible, in order to diminish the chance of sepsis.

In the discussion which followed, it was generally thought that the chances of absorption of the placenta were not sufficiently great to allow of the absence of a drainage-tube.

**Bland Sutton** (*Lancet*, March 30, 1895) read a paper at the Medical Society of London on a case of Tubal Pregnancy, and one Simulating Tubal Pregnancy. The first patient, the mother of two children, was suddenly seized with severe pain in the abdomen. In five hours she was collapsed, her pulse scarcely perceptible, and she complained of great abdominal pain. It was nine days after the first period she missed was due. On examination, there was some dulness in the left iliac region, the uterus was somewhat enlarged, the cervix was soft, and the os patulous. On incising the peritoneum, there was a rush of arterial blood, and a ruptured gestation sac was found in the left Fallopian tube. The tube and ovary were removed and the blood sponged out. The patient made a rapid recovery. The sac contained a tubal mole 8 mm. in diameter, furnished with chorionic villi, the smallest tubal mole Sutton has examined. The second case occurred in a patient thirty-five years of age, who had been married seven months, and believed herself to be three months advanced in pregnancy. She was suddenly seized with severe pain in the left side of the abdomen and metrorrhagia. There was a smooth rounded swelling in the left iliac fossa. The cervix was much depressed and soft. It was clear that she was pregnant, but whether the foetus occupied the uterus or the broad ligament was by no means certain; further, it seemed that pregnancy was complicated by an ovarian or uterine tumour. During the next night she miscarried of a three months' foetus. Three days later the abdomen became tender, the temperature rose to 103° F., and the patient was very ill. Nine days later Sutton performed abdominal section and removed from the fundus of the uterus a myoma which was glued to surrounding structures by recent adhesions. It was pointed out that one case illustrated the certainty with which rupture of a gravid tube might sometimes be diagnosed; and the second, how closely such an accident might be simulated. The first case demanded decision, the second deliberation. The second case was an example of the successful removal of a uterine myoma during the puerperium.

## IV.—OPERATIVE DELIVERY.

Cases of symphysiotomy have been diligently reported during the past year, and the operation is now fully established. Certain points, such as the advantage gained by the separation of the pubic bone, the solidity of after-union at the symphysis, and the safety of the child, may be considered as amply demonstrated. The operation has taken a recognised position in the list of obstetrical procedures, and each year its opponents become fewer in number.

**1. Symphysiotomy.**

**Surg.-Lieut.-Col. A. M. Branfoot** (*Brit. Med. Journ.*, Dec. 15, 1894) records a case of symphysiotomy in the Lying-in Hospital at Madras. The patient was a Hindu girl fifteen years of age, and had been in labour eight hours previous to admission. An attempt was made to deliver by axis-traction forceps. Surgeon-Lieut.-Col. Branfoot then performed symphysiotomy. He divided the symphysis with a small Hey's saw, when the pubic bones separated to about half an inch. Delivery was readily effected by forceps, the bones separating to about two and a half inches. The head was delivered with the occiput posterior. The bones were afterwards approximated by pressure and the periosteum sutured, a firm bandage being afterwards placed round the pelvis. The child was alive, weighed just under six pounds, and has since thriven well. The pubic bones united firmly, and the patient did well, with the exception of a small sinus at the lower end of the wound, which appeared, at the time of writing, to be closing. The pelvis was generally small, infantile and rachitic in type, probable true conjugate being estimated at not more than 2.5 inches. Surgeon-Lieut.-Col. Branfoot remarks that it was a suitable case for symphysiotomy, the other courses being Cæsarean section on the one hand, for which conditions were not satisfactory, and delivery of a mutilated child on the other. The operation performed secured a living child by a comparatively safe means.

**Noble** (*Trans. American Gynec. Soc.*, vol. xix., 1894) describes the case of a woman whose pelvic measurements were: ext. conjug.,  $6\frac{2}{5}$  in.; diag. conjug.,  $3\frac{3}{10}$  in.; true conjug. (estimated),  $2\frac{7}{10}$  in. At her first labour the child died from injuries due to the forceps. A very small child was spontaneously delivered at the end of the second pregnancy. The third labour was a Cæsarean section done by Howard Kelly, with delivery of a child weighing  $6\frac{1}{8}$  lbs. The fourth labour was induced five weeks before full term, and a child weighing 5 lbs. was delivered with great difficulty by

forceps. At the end of the next pregnancy Noble performed symphysiotomy at full term, and delivered by forceps a male child weighing over 8 lbs. The mother was delivered a second time by symphysiotomy and forceps of a child weighing 6 $\frac{3}{8}$  lbs.

**Winterberg** (*Philadelphia Med. News*, Jan. 12, 1895), as the result of his experience, is of opinion that the operation is indicated in flat pelves with a conjugate of from 2·6 in. to 3·4 in. ; in funnel-shaped pelves with a transverse diameter of pelvic outlet of 3·4 in. or less ; in cases of dystocia caused by tumours in the pelvic cavity ; and in cases of abnormal size of the foetus with a normal pelvis. Symphysiotomy should replace Cæsarean section and embryotomy whenever they are indicated.

**Pinard** (*Annales de Gynéc. et d'Obstét.*, Jan., 1895) sums up his experience of symphysiotomy at the Baudelocque clinic in 1894. He rigorously followed certain principles laid down over a year before—namely, (1) rejection of induced premature labour ; (2) rejection of the forceps or other contrivance which involves the pressure of the foetal head against any bony resistance in the inlet, cavity, or outlet ; (3) unconditional and absolute rejection of embryotomy on the live child ; (4) momentary increase of the pelvic diameters (by symphysiotomy, pubiotomy, ischiopubiotomy, or coccygotomy) in all cases where there is a bony resistance not overcome by the uterine contractions, the presentation of the head being well determined, and careful calculation showing that division of the pelvic arch and a sundering of the halves of the pelvis to an extent not exceeding 2·7 inches (7 c.m.) will allow of the passage of a foetal head at term ; and (5) Porro's Cæsarean section in cases of absolute pelvic contraction. Twenty-two symphysiotomies were performed in 1894, with three maternal deaths—one from intestinal obstruction and two from sepsis, which was present before admission. Two children were lost, one from severe injury from previous attempts at delivery with forceps, one from pressure of the cord by the head before operation. In 13 cases the patient was a primipara, in 9 a multipara. The presentations were :—Vertex, 17 ; breech, 2 ; shoulder, 1 ; forehead, 1 ; face, 1. The pelvic deformity was in 20 cases purely rachitic ; in 1, rachitic contraction complicated by congenital dislocation of one hip-joint ; and in 1, spondylolisthesis. In 1 case it was performed for the second time on the same patient. The total statistics of symphysiotomy in the same establishment in 1892-4 include 49 cases. Four women and five children (no note of twins) were lost.

*Symphysiotomies in 1892-93.*—**Robert P. Harris** (*Amer. Gynec. Obstet. Journ.*, 1895) publishes statistics of symphysiotomy.

In 1892, 85 cases were reported in thirteen countries, with the loss of 10 women and 24 children; 37 were French, 6 women and 3 children being lost; 12 German, with loss of 2 women and 4 children; 11 in Italy, where only 1 child died. In the United States and Austria there were 7 cases, with the loss of 2 children, and none of the women. In no other land were over 4 attempted.

In 1893 the results were as follows :—

COUNTRIES.	CASES.	WOMEN DIED.	CHILDREN DIED.
Germany ... ..	37	1	8
United States ... ..	31	5	7
Austria... ..	30	7	4
France .. ...	24	4	5
Russia ... ..	10	1	3
Italy ... ..	5	—	2
Belgium ... ..	2	—	—
Canada... ..	2	—	—
Switzerland ... ..	1	—	—
Sweden... ..	1	—	—
Roumania ... ..	1	—	—
England ... ..	1	—	—
Holland ... ..	1	—	—
Brazil ... ..	1	—	—
India ... ..	1	—	—
	148	18	29

## 2. Induction of labour.

Robert Barnes read a paper at the Brit. Med. Assoc. meeting on the Induction of Labour (*Brit. Med. Journ.*, Dec. 22, 1894). He discussed the indications to interfere with the course of gestation given by the observation of the accidents arising during pregnancy and puerpery. The indications, he says, spring from the study of the conditions which imperil the mother, the embryo, or both. Frequently the two interests run together. He does not discuss cases in which mechanical obstruction to the process of labour calls for interference, but thinks that the progress of abdominal surgery will minimise resort to sacrificial operations. Barnes points out that the most remarkable phenomena evoked by pregnancy are the increased nervous and vascular tension with alterations in the quality of the blood. When failure to meet the extra strain arises, expectant treatment must not be pursued too far, the transition from physiology to pathology being often insidious, and sometimes sudden. Vomiting, which is really a convulsive affection, is one of the earliest evidences of high

nervous tension, tending to acquire force by repetition, and when setting in with mental shock, a great depression may resist all treatment, and rapidly lead to a fatal termination. Obstinate vomiting in the later stages of gestation, due to excessive distension of the uterus, calls for induction of labour in the interests of both mother and child. From vomiting he passes on to the severer and more commonly pathological forms of convulsion, and observes that eclampsia, when albuminuria is an efficient factor, calls for prompt action. There is firstly imminent danger to life; secondly, life being saved, probable danger of permanent nephritis. Chorea and epilepsy, evidences of disease of the nervous centres, demand the termination of pregnancy; chorea, when evoked by gestation, being likely to culminate in insanity. Insanity has an important bearing upon the question, and Barnes compares the nervous emotional phenomena arising under the influence of gestation to convulsions. Hysteria is certainly allied to convulsions; and other marked emotional proclivities, even when not certainly associated with structural changes, not seldom lead to insanity, and are certainly aggravated by pregnancy. Barnes has seen mania vanish on the arrest of pregnancy; but this question is a wide one. Passing on to the dangers of increased vascular tension during pregnancy, he points out how relief is given by nature—by external hæmorrhages, by serous effusions, and by vomiting, as well as by increased action of the lungs, skin, and intestines. Nature may be imitated by purges or emetics, or, at last, by inducing labour. In valvular disease of the heart, fatty degeneration, and aneurism we must be prepared to induce labour where signs of distress are marked. The question of inducing labour when a woman suffering from grave constitutional or organic disease, as phthisis, becomes pregnant is an anxious and difficult one. The puerperal period is the most dangerous for a phthisical patient. It must be doubtful often whether life can be prolonged by shortening gestation, and whether the strain of puerpery will be checked. When tumours of the uterus exist it is generally unsafe to let gestation go on. Repeated delivery of a dead child, with a diseased placenta, points to the expediency of anticipating the loss of the child by inducing labour, and carrying a dead child is not free from danger to the mother. It is often advisable to end pregnancy for diseases arising during gestation, and in scarlatina especially we must be prepared to induce labour at the first indication of albuminuria. The preservation of the child is always a strong reason for *temporising*, but the mother must be the first consideration.

*In the discussion after the paper, considerable divergence of*



opinion was expressed as to how far albuminuria was an indication for operation, Tweedy saying that at the Rotunda induction was not performed for albuminuria, even if eclampsia occurred, as it was held that it added enormously to the severity of the condition.

**Solovieff** (*Répert. Univ. d'Obstét. et de Gynéc.*, Jan. 25, 1895) says that out of 290 labours in the Moscow Maternity induction of premature labour for general pelvic contraction was found needful in twelve cases. Labour was brought on between the thirty-sixth and thirty-eighth week of gestation. All the women recovered, but seven of the infants were lost. This enormous mortality is due, Solovieff believes, to individual predisposition on the part of the foetus. In the interests of the child, forceps or turning is best. The integrity of the membranes is of the highest importance for its safety. Contracted pelvis is always unfavourable for the foetus; slipping up of the arm and compression of the cord are both frequent. The mortality of the children, however, should not be a contraindication to induction of premature labour, for it is much less serious than symphysiotomy.

**Marderel** (*Lyon. Méd.*, Feb. 10, 1895) successfully practised induction of labour in the second, third, and fourth pregnancies of a young woman whose first labour was very lingering, and was terminated with difficulty by the forceps. The true conjugate was  $3\frac{1}{5}$  inches. Forceps, owing to the patient's weakness, was necessary in one labour. The times chosen were in one instance at the eighth month; in the other two, a fortnight later. Marderel thinks that the introduction of a bougie is, without doubt, the right way to induce labour. Tarnier's bag is sometimes expelled before it has time to dilate the cervix sufficiently. Champetier de Ribes's bag is apt to displace the foetus, so as to change the presentation. Kisvisch's vaginal irrigation is tedious and uncertain, and is sometimes followed by alarming symptoms. Marderel thinks that symphysiotomy in private practice is impossible or unjustifiable, and that then induction of labour is the right treatment.

### **3. The treatment of uterine hæmorrhage during the last two months of pregnancy.**

**Smyly**, at the meeting of the British Medical Association, 1894 (*Brit. Med. Journ.*, Jan. 12, 1895), read a paper on this subject, dealing with hæmorrhage from the placental site. Taking first unavoidable hæmorrhage, he points out that placenta prævia most frequently occurs in women with large and diseased uteri, and that the placenta is seldom normal and is

generally thinned out. The diagnosis depends upon hæmorrhage occurring towards the end of pregnancy or at the commencement of labour, and feeling the placenta through the cervix or os uteri. Hæmorrhage at the commencement of labour arises from the separation of the ovum from the lower part of the uterus. The membranes remaining intact, the ovum is driven downwards, while the lower uterine segment is drawn upwards, separation taking place from below upwards. When the membranes are ruptured the fœtus only is driven downwards, the membranes being drawn up with the uterine wall to which they are attached. Should the placenta, which is a modified portion of the fœtal envelopes, be developed at the lower pole of the ovum, it also will be separated and hæmorrhage occur. As the detachment may cease with rupture of the membranes, so may the bleeding also. As to treatment, Smyly says that in nearly all severe cases the os is sufficiently dilated to admit two fingers, when a foot should be brought down. Should flooding continue, gentle traction upon the leg may be required. It will be necessary to perform version—either abdominal or by Braxton Hicks's bipolar method—if the lower extremity does not present. If the os internum will not admit two fingers, Smyly would plug the vagina; but these are rare cases. If labour is far advanced, rupture of the membranes is all that is required. The mortality following this method is under 7 per cent. as compared with 24 per cent. when the whole hand is introduced into the uterus. Accidental hæmorrhage, he thinks, is almost always due to disease of the placenta, and concealed hæmorrhage is largely due to the diseased uterine wall yielding to pressure. In severe cases, and especially when no blood escapes externally, the symptoms may be those of shock with cessation of pains and recession of the fœtus. Out of 110 cases collected by Goodell, fifty-four mothers died and only six children were born alive. In the treatment of accidental hæmorrhage indications are to be looked for in the condition of the patient—the presence or absence of labour pains—and in the state of the os and membranes. Some cases require no interference; in some, where labour is far advanced, rupture of membranes is sufficient, though when the os is small and the pains are feeble or absent, the latter method is contraindicated, the escape of the liquor amnii not bringing on pains with sufficient promptness, but allowing blood to pour into the uterus, in which *case the child must be extracted by artificial dilation of the os and version—a proceeding attended with the greatest risk. The patients are often suffering from shock, which we must first*

combat. When blood escapes externally and the os is small, the membranes being intact, a hot douche, a firm tampon, and a binder are of much use. In internal hæmorrhage, if labour is far advanced, delivery by *accouchement forcé* appears to give the mother the best chance; but one must not be in too great a hurry to interfere. In some cases hæmorrhage may have ceased. The patient then should be carefully watched; to plug the vagina or rupture the membranes would be useless, and if the patient got worse, choice would lie between *accouchement forcé* and Porro's operation. Smyly thinks the latter to be the less hazardous operation. In all cases the ruling principle should be to proceed with as little force and precipitation as possible. In the discussion following the paper, **Robert Barnes** said that the mortality in his cases where he separated the placenta from the lower uterine segment was not greater than Dr. Smyly's; he objected to plugging. **More Madden** recommended that the whole hand should be inserted into the uterus when turning. **Murdoch Cameron** thought Porro's operation unjustifiable, and that the os was easily dilatable by Barnes' bags in all cases of hæmorrhage. Champetier de Ribes's bag he condemned. It was generally agreed that in hæmorrhage of any severity during the last two months of pregnancy labour should be induced.

#### **4. Separation of the after-coming head.**

**Purslow** (*Brit. Med. Jour.*, Jan. 19, 1895) gives an account of four cases in which separation of the after-coming head had occurred during delivery. In three of the cases, including one where artificial dilatation of the os and version were performed, the accident was due to a rigid cervix, but the force used was not sufficient to cause laceration of the cervix, showing how easily the head separated. In the fourth case the foetus was in a putrid condition. As regards prevention, Purslow thinks that where the foetus is premature and separation appears likely to happen it would be well to seize the head with a suitable pair of forceps, as Heywood Smith's ovum forceps, while it is still possible to fix the head by the attached body. Where the foetus is fully developed but decomposed the finger or a crotchet should be used, if possible, to exert traction on the jaw. After the separation of the head, when the foetus is small, the extraction is not difficult with a suitable pair of forceps. If recourse must be had to the finger alone it is best to push the finger through the vault of the skull, as Purslow did in one of his cases. When the foetus is decomposed and some obstruction is met with at the pelvic brim, as in the fourth of his cases, Purslow recommends delivery by the cephalotribe; if an attempt be made to deliver by traction on the jaw,

the latter will, in all probability, come off, and the stump of the neck, with perhaps jagged bone projecting, is turned into such a position as to injure the walls of the uterus or vagina.

### **5. Case of Cæsarean section.**

William Duncan records a case of Cæsarean section in a woman who had had inguinal colotomy performed for cancer of the rectum eighteen months previously (*Lancet*, Feb. 16, 1895). The patient, whose age was only twenty-six, was admitted into the cancer ward of the Middlesex Hospital on June 28, 1894. In August she was found to be pregnant, the pregnancy being of between five and six months' duration. Owing to the extensive blocking of the pelvic canal by the growth it was decided to allow the pregnancy to go on to full term and then perform Cæsarean section. The operation took place on November 22. A great difficulty as regards the operation was the near proximity of the artificial anus, but such precautions were taken during and after the operation that both the mother and the child, which was thought to be about eight months, did very well. Duncan remarked that even in cases where there is much less narrowing of the parturient canal than there was in this instance, whether from disease of the cervix uteri or of the surrounding parts, provided the disease be of a malignant nature, the life of the child should receive much more consideration than if the disease were not cancerous, and an attempt ought always to be made to save it by Cæsarean section. With regard to the operation, he did not bring the uterus, as in previous cases, outside the abdomen before incising it, nor was any attempt made to control bleeding by passing an elastic band round the cervix, the latter procedure having a tendency to produce uterine paralysis and violent *post-partum* hæmorrhage after its removal. Duncan uses a large metal Hodge's pessary to control the hæmorrhage, but in this case it had no effect, probably owing to the placenta being situated in front. As a rule, he introduces a bougie into the uterine cavity for six or eight hours previous to the operation, as the uterus is then more certain to contract. In the present instance it was impossible to do this. When this is not done it is necessary to pass something through the cervical canal to insure its patency.

### **6. The fillet in breech labours.**

Bar (*Arch. de Tocol. et de Gynéc.*, March, 1895) showed at the Paris Obstetrical and Gynæcological Society an infant aged two, with a deep scar in the right groin. It limped slightly, and the right thigh was four-fifths of an inch short. At its birth the *fillet* had been used, all other means having failed. Bar attributed the shortening to atrophy of the head of the femur

following separation of the epiphysis due to the fillet. He exhibited a cast of a similar case with a deep incised wound in the groin; a crack was heard during extraction, and the wound suppurated, the child dying of pneumonia. Charpentier admitted that he had damaged both soft parts and bones, even when employing the fillet with the greatest care. Guéniot always aided the traction of the instrument by passing the hollow of the hand into the concavity of the sacrum and exercising further traction. Budin added uterine expression as an aid. Porak advocated the application of a fillet to each thigh. Maygrier held that the fillet should be used in dorso-anterior and the forceps in dorso-posterior positions. Olivier protected the fillet by enveloping it in a rubber tube, by this means always avoiding accidents.

#### **7. Evisceration in protracted cross-birth.**

Mermann (*Centralbl. f. Gynäk.*, No. 36, 1895) relates five cases in which he found evisceration sufficient to allow of speedy extraction, when transverse presentation had rendered labour dangerously long. All recovered but one, who died on the tenth day of pneumonia, due to a chill not associated with delivery. In each case the child was dead, or almost certainly dead, and labour had lasted eighteen hours to seven days. Version had been attempted, but proved ineffectual.

### **V.—THE PUERPERAL STATE.**

Much questioning has arisen of late as to how far the curette may be used with safety in the puerperal period. The main objection raised against its use is the danger which exists of perforating the uterus while using the instrument. The softened condition of the uterine wall naturally makes this accident more probable than in the non-gravid state. At the same time much would clearly depend on the dexterity of the operator. If it be argued that it is desirable frequently to explore the uterine cavity after delivery owing to the presence of septic symptoms and to remove portions of placental remains with the finger-nail, it is equally certain that in such cases the use of the curette will lead to a more complete and more efficient cleansing of the surface of the mucosa. In cases of septic endometritis the curette has given the happiest results, and out of a large number of these operations performed in our practice not a single case of perforation has occurred.

#### **1. Local treatment of puerperal fever.**

Cullingworth, "On the Local Treatment of Puerperal Fever,"

(*Practitioner*, April, 1895), points out that puerperal fever may be divided into cases of septicæmia, or septic infection, due to the introduction of micro-organisms, where the disease being general the patient is beyond the reach of local antidotes, and cases of sapræmia, or septic intoxication, due to the absorption of the products of decomposition from portions of placenta, membranes, or blood-clot retained within the uterine cavity. In the latter class of cases, provided there be no septic infection as well, the best results are obtained from removal of the decomposing tissue. To effect this, the intra-uterine douche, in Cullingworth's opinion, though the usual treatment, is inefficient, and sure to disappoint. The method he advises is, after having ascertained that the bladder and rectum are empty, and after disinfecting the hands, to pass the first, and if possible the second, finger of one hand into the uterine cavity while grasping the body of the uterus through the abdominal wall with the other, and to explore the whole surface thoroughly and remove all adherent fragments. Cullingworth uses a solution of corrosive sublimate (1 in 5,000) as a douche after this procedure, taking care that none of the lotion remains in the cavity. He thinks that the finger must be much more safe to employ than the curette.

According to **Demelin** (*Arch. de Tocol. et de Gynéc.*, March, 1895), the chief indication is infection ; but, in addition to cases of infective endometritis, he recommends curettage in cases where a retained portion of placenta has begun to decompose ; also in febrile conditions with retention of a thickened decidua, if the fever does not yield to uterine irrigation. Dumont points out the dangers of curetting a recently delivered uterus, and says that it is impossible to remove the whole of the infected tissue because of the size of the cavity and the softness of the uterine wall, and that the curette may be the means of opening the door to a general infection. Severe hæmorrhage may occur, and in some cases the uterine wall has been perforated.

**Lusk** (*Amer. Gynecol. and Obst. Journ.*, April, 1895) strongly condemns the use of the curette in endometritis following childbirth, and asserts that these cases will get perfectly well if left alone.

**Ferré** (*Nouvelles Archives d'Obstét. et de Gynéc.*, Nov. 25, 1894) strongly supports this practice after long experience of irrigation of the uterine cavity for puerperal infection, a procedure which lowered mortality, but did not save several bad cases. At the same time he never had recourse to the curette after labour, except when placental relics required removal. Since using the

curette six bad cases had been treated by Ferré, with only one death. The fatal case was a private patient, and symptoms of infection immediately followed natural labour at term ; she was left without assistance for five days, and the curette was employed as a last resource. The patient died on the seventeenth day. In a second private case the curette was used on the second day immediately after a rise of temperature with rigors. The symptoms of infection at once vanished. In a third a live child was born ; a twin then presented at the shoulder, and embryotomy had to be performed. Fever set in on the same evening ; next day large blunt curettes were used, without anæsthetics ; the uterine cavity was swabbed with glycerine of creasote and plugged with iodoform gauze. All bad symptoms ceased at once. The three remaining cases were in the Pau Lying-in Hospital, and had all the advantages of treatment in a public institution. They resembled the second above described, except that in one case parametritis set in before the curette could be used. All recovered.

## **2. The cold bath in puerperal septicæmia.**

Macé (*Archives de Tocol. et de Gynéc.*, Dec., 1894) strongly advocates this treatment. He has collected 74 cases ; they include 7 deaths—3 from peritonitis, 1 from pyæmia, 1 from exhaustion after a long shoulder-presentation labour, and 2 from the severity of the infection ; the baths were given with too much timidity. The cold bath is contraindicated when peritonitis, phlegmon of the broad ligaments, or phlegmasia dolens exists. It has proved successful when grave maladies, such as measles, erysipelas, eclampsia, or bronchitis, have complicated the puerperal infection. The obstetrician must not delay treatment when high temperature and general constitutional disturbance have set in. First of all, he must make sure that the uterus is free from products of conception. Then, should the temperature rise over  $101^{\circ}$ , the bath must be used. It is often of value where the temperature is lower, the patient already suffering from headache and hot skin. The bath should be a little over  $75^{\circ}$  F. as a rule. Macé insists that it is right to leave the patient in till she shivers, especially when hyperpyrexia is the most marked symptom. In other respects the same precautions are needed as in typhoid fever. Subcutaneous injections of caffein or spartein should be given before the bath when the symptoms are severe, so as to counteract the tendency to syncope.

At a discussion raised by Fochier, of Lyons (*Progrès Méd.*, May 25, 1895), he said that the cold bath should never be administered when the temperature oscillates, but only when it



keeps high for a long time. The method requires greater precautions in high temperature during pregnancy and childbed than in the treatment of typhoid fever, where there are none of the great falls of temperature so frequent in disorders of gestation. Gaulard mentioned a case of septic infection after childbirth where the curette was used without lowering the temperature, and when cold baths were used for a fortnight. Fochier also described a case in which toxæmia occurred during pregnancy. The patient's sight failed and eclampsia developed. Notwithstanding palliative treatment, the temperature rose above  $105^{\circ}$ , the pulse could not be counted, and breathing was stertorous. She was placed in a bath at  $77^{\circ}$  F., and within ten minutes the pulse fell to 100, then to 80. The patient came to her senses and was removed from the bath. Two hours later she was again placed in the bath, this time at  $90^{\circ}$ , and cold affusions were applied to the head for half an hour. The patient recovered.

### 3. Degenerative changes in the mammary gland.

Temesváry (*Wiener med. Woch.*, Dec. 1, 1894) finds that the complete absence of the secreting function in the breast, when it occurs after labour in the healthy subject, is almost invariably an inherited infirmity. It depends on arrested or otherwise abnormal development, atrophy or fatty degeneration involving the glandular tissue. In very young mothers the imperfectly developed glands sometimes fail to secrete, whilst at subsequent labours they yield plenty of milk. Temesváry has observed a case where a woman, not a primipara, suffered from complete agalactia after labour. In a previous childbed the ducts on each side had been cut across in opening mammary abscesses.

Duclert (*Journal de l'Anat. et de la Physiol.*, Sept. and Oct., 1894) notes that he has already proved in his "Histologie de la Sécrétion du Lait" that in the days immediately before and after delivery the glandular epithelium undergoes a typical colloid degeneration. He now finds that in inflammation of the breasts a similar degeneration is produced by the staphylococcus aureus. This microbe must be well diluted or not very active to produce colloid degeneration of the epithelium, otherwise the cellular elements are rapidly destroyed by the severity of the inflammatory process. The colloid corpuscles produced by an inflamed breast are very like colostrum cells in appearance, but they are much larger.

### 4. Lactation statistics.

Wiedow (*Centralblatt f. Gynäk.*, No. 29, 1895) has collected the following statistics at the Freiburg Maternity. Out of 525

women in childbed, only half could suckle thoroughly during the first two weeks. In 99 no milk at all was secreted. Imperfect nipples were noted in 49 cases, fissures in 46, and insufficient secretion of milk in 44. Only 33 suckled freely without any of the above-named complications. Wiedow classifies breasts under three groups, the percentages in his series being: good breasts, 56 per cent.; medium, 21 per cent.; and bad, 11 per cent. The development of the nipple bore a direct relation to the value of the breast as a secretory organ.

### **5. Composition of human milk.**

Axel Johannessen (*Jahrb. f. Kinderhllknde.*, Bd. xxix., H. 4, p. 380) has analysed the milk of twenty-five suckling women. He found the proportion of albumen to be on an average 1.1 per cent. (maximum, 2.6 per cent.), varying in the same woman sometimes from 0.6 per cent. to 2.0 per cent. The average of fat was 3.21 per cent., varying from 0.63 per cent. to 6.65 per cent., and in one woman from 1.34 per cent. to 6.09 per cent. Sugar on an average was 4.67 per cent. (maximum, 9.77 per cent.; minimum, 2.55 per cent.), the greatest difference in one woman being 4.0 per cent. to 7.5 per cent. The specific gravity varied from 1025 to 1036. During one nursing the percentage of albumen generally remained about the same, that of sugar slightly diminished, while that of fat increased from 2.77 per cent. to 3.94 per cent. As lactation advanced the albumen steadily diminished, the sugar increased slightly, while the fat, decreasing at first, increased at the end of the year. The largest amount of fat was found in milk of women between twenty and twenty-five years of age; of albumen between twenty-five and thirty; of sugar above thirty years of age. Blondes yield a milk richer in fat and sugar than that of brunettes, but rather poorer in albumen.

### **6. Treatment of puerperal septicæmia with antistreptococcic serum.**

Jacquot (*Société de Biologie*, May 11, 1895) successfully employed Roger and Charrin's serum in a case of puerperal septicæmia where quinine and intra-uterine douches had been used ineffectually. Thirty c.cm. of the serum were injected, and the temperature came down from 105.4° F. to normal in a few hours. Two more injections were given, and the woman appeared to have quite recovered. Three days later the patient's mother fell ill with erysipelas of the face, and the patient herself followed two days later still. The serum was again injected after three days, and the temperature quickly fell to normal. This case illustrates the prompt antithermic action of the serum and

the intimate connection between puerperal fever and facial erysipelas.

### **7. Puerperal fever without localising signs.**

**Rapin** (*Sem. Méd.*, May 8, 1895) reports the following case:— A multipara was delivered of stillborn twins by version; placenta removed. At first the lochia were foetid, without fever, pain, or gastric trouble. Antiseptic intra-uterine douches twice daily. On the tenth day the patient got up and appeared cured. On the eighteenth to twenty-eighth day, high fever and rigors once or twice a day. No localisation possible in any organ. Quinine, alcohol, and wet pack ordered, and on the thirtieth day uterus curetted, abundant deep granulations of lardaceous tissue being brought away; the uterine walls were soft and friable. Temperature fell the same day; one rigor in the evening; after that convalescence was rapid. Rapin believes this case to be unique; it shows the value of the curette even in chronic cases after local signs have disappeared, and proves that the illness was due to sapræmia and not to septic infection.

### **8. Pleurisy in the puerperium.**

This subject was discussed at the Paris Obstetrical and Gynæcological Society (*Jour. de Méd. de Paris*, April 7, 1895). **Budin** denied that pleurisy always became purulent. **Charpentier** stated that he attended a young woman sinking from puerperal septicæmia. He used the curette and she got better. On the twelfth day pleurisy set in, and on aspiration some serous fluid escaped. A few days later purulent fluid was drawn off. **Pichevin** described a case where two pints of clear fluid were withdrawn. **Bar** agreed that empyema did not necessarily occur in pleurisy attacking very septic midwifery cases. **Guéniot** admitted that the effusion in these cases was sometimes serous and at other times purulent. **Dolérus** said that clear serum might contain pneumococci, or even ptomaines without germs. **Forman**, in a case of pleuro-pneumonia beginning before premature labour, tapped the pleura during the puerperium. The fluid was purulent, and contained pneumococci.

### **9. Puerperal polyneuritis.**

**Lunz** (*Deutsche med. Wochenschr.*, Nov. 22, 1894) concludes that most cases depend directly upon local infection, and belong to pyæmic and septic forms of polyneuritis. A second variety may appear during pregnancy or after delivery; it comes under the cachectic type of this disease, due in these cases to disturbed nutrition following uncontrollable vomiting, complete loss of appetite, or flooding. There remain instances of polyneuritis which cannot be traced to local infection or cachexia. Profound

anæmia, psychical disturbance, exhaustion, all due to labour or the overloading of the blood from the reabsorption of waste products, set up inflammations of nerve. There is no uniform type, but puerperal resembles diphtheritic polyneuritis. Just as a mild attack of diphtheria is sometimes followed by polyneuritis severe enough to endanger life, so slight septic infection after labour may result in an equally serious form of that nerve disease.

## VI.—MECHANISM OF DELIVERY.

The following papers by Barbour and others will be found of considerable value :—

### **1. Frozen sections in their bearing on the mechanism of labour and the third stage.**

Freeland Barbour (*Lancet*, Feb. 23 and Mar. 23, 1895), at a meeting of the Edinburgh Obstetrical Society, said that twenty-two sections had been published, excluding pregnancies. In two cases of pregnancy the peritoneum did not descend into the pelvis in front. In two cases, also of pregnancy, the bladder was found to be partly above the brim of the pelvis. As regards the mechanism, it was found that some cases had the long axis of the uterus parallel to the spine, in others it was perpendicular to the axis of the brim. Probably the former position was that found in the intervals between the pains. The retraction ring was not always recognisable. In all the sections, with one exception, the chin was apposed to the sternum, the exception being an occipito-posterior case, where there was divergence to one inch and a quarter. As regards the engagement of the head, the received view is that the head is synclitic, the horizontal planes of the head coinciding with the horizontal planes of the pelvis, but in no frozen section is the head synclitic. In most there is more of the posterior half of the head below the plane of the brim as the head engages than of the anterior. As regards the third stage, two sections where the uterus had been emptied by artificial delivery and one case of triplets showed great diminution of the area of the uterus and shrinking of the placental site without any separation of the placenta, which was in folds or bulging at the borders. In normal labour no separation takes place until retraction has occurred. During this retraction the uterine vessels are closed.

Before the same Society, Fothergill read a paper on the "Height of the Fundus and the Shape of the Uterus when the Head is at the Brim and at the Vulva respectively." The results

of measurements in thirty cases were that with the head on the vulva the fundus was one-third of an inch higher than in the former position, and that the uterus was narrower by one inch, and had diminished by about one inch antero-posteriorly when the head was in the latter position.

**Bruttan** (*Berichte aus der Universitäts-Frauenklinik zu Dorpat*, 1894) has seen a number of cases of coiling of the funis round the foetus, for at Dorpat this condition is unusually common, being seen in 1 : 3·49 labours. It coincides with the fact that in Esthonian women the cord is often very long (average  $22\frac{4}{5}$  inches). Stillborn children are not more frequent in these cases. The danger to the child in head presentations with coiled funis is limited to cases where the head is impacted. The danger in any case is almost certainly due to the risk of compression of the cord between the child and the maternal passages, or between two parts of the child. Direct strangulation of the child through coiling of the cord round the neck is extremely rare; in head presentations it is almost peculiar to multiparæ. In primiparæ about every ninth child with funis coiled round its body is lost from pressure on the cord. In multiparæ the chief harm is limited to a greater number of children born asphyxiated.

## **2. Normal pregnancy after abdominal hysteropexy.**

**Fraipont** (*Ann. de la Soc. Médico-Chirurg. de Liège*, 1894) reports four cases where pregnancy and labour were practically normal, though the uterus of each patient had been fixed to the abdominal walls. In two of the cases the hysteropexy had been performed over five years before the pregnancy occurred, and although the bands of adhesion between the fundus and the parietes must have become very tough, no special difficulty was encountered. In two of the cases forceps were used, but not on account of uterine inertia. The placenta was expelled easily, and no serious *post-partum* hæmorrhage occurred. Fraipont observed the progress of pregnancy in several of these cases, and found that the uterus increases uniformly, so that the fundus gradually detaches itself from the abdominal wound, stretching the adhesions and rendering them useless for their original purpose after delivery. As, however, the uterus undergoes perfect involution, it is restored to its condition before the onset of the disease which rendered hysteropexy necessary.

# DISEASES OF THE SKIN.

BY MALCOLM MORRIS, F.R.C.S.ED.,

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DURING the past year there has been a fair amount of activity in the dermatological world. At the Congress of the German Dermatological Society at Graz, in the Section of Dermatology at the annual meeting of the British Medical Association, at the Congress of the American Dermatological Society in the spring, and at that of the Italian Society of Dermatology in Rome in the autumn, interesting cases were shown, and valuable papers were presented, but the work done at all these gatherings was clinical and pathological, rather than therapeutic in character. On the whole, there is no very definite advance in the treatment of diseases of the skin to be chronicled ; but although no new departure has been taken, a good deal of less brilliant, but not less useful, work has been done in the way of testing methods of treatment. Psoriasis and lupus are still the chief *opprobria* of dermatology, and it was inevitable, therefore, that a large proportion of the work to be recorded should have reference to these affections.

## **1. The treatment of psoriasis.**

Crocker (*Brit. Journ. Derm.*, July, 1895) points out that although among the mass of the profession arsenic was given in every case of psoriasis or other chronic skin disease, that drug was very likely, where the eruption developed acutely, to produce extension of the disease, and in extremely hyperæmic cases it increased the irritation and burning. As a prophylactic it failed entirely, since fresh patches arose while the patient was fully under its influence. In the ordinary run of cases, however, and in the absence of gastro-intestinal disturbance, it was generally of service, but its action was very slow. Thyroid extract had only a narrow sphere of usefulness. It was unsuitable for elderly people with weak hearts, and also in cases which were developing rapidly, or in which the hyperæmia was great. In his experience thyroid extract did not give more permanent results than other treatment. He called special attention to the use of salicin, salicylates, and their

allies and derivatives. In several cases in which he had administered these drugs internally, the result had been striking and conclusive, and most markedly so in extensively spreading cases of psoriasis guttata of recent development. The results were not so brilliant when the disease was limited to a few chronic patches. Sometimes salicylates caused dyspepsia and nausea, and it was suggested that in such cases the pure natural salicin might be better tolerated. The author had also given salicylate of soda with considerable benefit in cases of erythema multiforme, including erythema iris, but it was difficult to have conclusive proof in such cases that the apparent effect of the drug was not due to spontaneous involution. In erythema nodosum also it was strongly indicated. In one case of lupus erythematosus, striking improvement followed the use of salicylates, although previous treatment by thyroid extract had been of no benefit. Crocker summed up his conclusions as follows:—Salicylate of soda, and probably salicin and its derivatives, are of great value in psoriasis, especially in the period of active development and in hyperæmic cases, which are unsuitable, as a rule, for arsenic and thyroid extract. They are useful in all forms except when they produce dyspepsia, and perhaps in old chronic patches. Finally, they are much less likely to upset the general health of the patient than either arsenic or thyroid extract.

In discussing Crocker's paper, Liveing said that for acute cases he would rely on salicylate of soda, or on the iodide of potassium or sodium. Stephen Mackenzie agreed in the main with Crocker's observations about arsenic, and considered it possible that recurrence of disease might be delayed, and even averted, by its administration, but the difficulty was to trace reliable effects to any one remedy. Thyroid extract, in his opinion, was to be used as a promising means when other treatment had failed. Payne considered arsenic useful in the treatment of psoriasis in children and in adolescents during early attacks, but of comparatively little use in persons at or beyond middle life. His experience in the use of thyroid extract was limited, and not encouraging. He expected more from iodide of potassium in large doses. He had already published his observations on the relative use of salicylate of sodium and quinine in cases of erythema, but he was not yet clear which was the more efficient. On the whole there was no internal remedy to be compared to a good external one, if used at once. W. Anderson had given thyroid extract in thirteen cases, seven of which were psoriasis, five lupus, and one lupus erythematosus. In spite of admission into hospital and abstention from all local treatment, the results were either negative or unfavourable.



In some the disease actually progressed, while in a few the temporary general disorder produced by moderate doses made the patients very ill. His experience of arsenic in psoriasis was not very favourable; indeed, its discontinuance had relieved patients from many disadvantages attributable to the drug when given for psoriasis. He was satisfied, however, that in some cases where an element of gout or rheumatism existed, the salicylates were decidedly beneficial. **Harrison** (Clifton) had practically abandoned arsenic in the treatment of psoriasis. His experience was that the administration of salicylates had always produced much benefit. **Crocker**, in reply, said the experience of those present conveyed that, while he had some little respect for thyroid extract, the bulk of those present had none. Further investigation was, however, needed. Referring to iodide of potassium in large doses, he considered it had valuable diuretic action, but produced intestinal catarrh, and occasionally gouty conditions, if administered for too long a time.

**Bulkley** (*Trans. Med. Soc. State of New York*, Feb. 7, 1895) gives the results of a study of 366 cases of psoriasis which have been under his care in private practice. He is inclined to think that there is but one cause for the eruption, "the acid blood state belonging or leading up to gout, which may be developed more or less in the rheumatic and strumous, as well as in those where its fuller deposit ends in gouty deposit or in inflammation of the small joints."

There is no single specific for psoriasis, although arsenic seems to come nearer to this than any one remedy; when given in full and persistent doses, it often serves to remove the eruption and keep it in abeyance. But arsenic constantly fails either to remove the eruption or to prevent relapse. Potash, lithia, and soda, in various forms and combinations, are remedies of incalculable value. They should, however, be given in combination with and alternated with other remedies. Colchicum is often a great aid, and in sthenic cases aconite often assists greatly; prolonged alkaline treatment will often result in more or less anæmia, and iron and manganese will also come in as adjuvants, while strychnia, phosphates, cod-liver oil, and many tonics and reconstitutives may be needed. The acidity of the urine, as is known, is modified by free dilution, and the changes of assimilation and dissimilation, which are at fault in psoriasis, are hastened and improved by the free passage of water through the system. As to mineral springs, the single element which is of value is the water. **Bulkley** therefore advocates in cases of psoriasis the free use of common water, taken, as at the springs, hot and on an empty stomach, half to one

hour before meals. The diet must be regulated, everything which contributes to the production of an acid state of the system also tending to increase the skin difficulty. Excessive meat eating will also increase the disease. He has a considerable number of psoriatic patients who have taken no meat, or only a very little fish and white meat of poultry, with the result of being free from the eruption for a long period of time. Fatty matter, however, if properly digested, will aid in removing the diseased state. Hygiene must also be attended to. Exercise should be moderate, and damp cold climates should, as far as possible, be avoided. Bulkley has known patients to remain quite free from the eruption as long as they resided in the tropics. Local treatment must never be neglected. Many remedies, including chrysarobin, pyrogallic acid, salicylic acid, naphthalin, gallaceto-phenon, aristol, and others, are of great value, and by means of one or the other of them the eruption may often be removed. Bathing of various kinds, including sea-bathing, is also of much assistance. The paper, however, is said by the author to be intended to show the importance of constitutional rather than local measures in obtaining the really best results in psoriasis.

Seifert (*Archiv für Dermat. u. Syph.*, Bd. xxvii., Hft. 3) has treated thirteen cases of psoriasis by large doses of iodide of potassium. He concludes that the administration of the drug combined with local treatment by chrysarobin cures the disease more rapidly than either method alone. He divides his thirteen cases into three groups, according to the action of the drug. All the cases, with one exception, were examples of psoriasis vulgaris; the exception showed palmar and plantar psoriasis as well as universal eruption. Group I. contains two cases, both females; they showed distinct evidences of iodism; and in one case, owing to gastric disturbance, the drug had to be stopped during the disappearance of the rash. Chrysarobin-traumaticin (chrysarobin 3j, liq. guttapercha 3j) was applied with benefit to the patches of psoriasis during deservescence. Group II. contains seven cases. Four were completely cured by potassium iodide without any external application. In the remaining three, chrysarobin expedited the cure. Group III. contains four cases completely cured under potassium iodide, and in each case the bodily weight was increased in spite of iodism. Seifert does not recommend potassium iodide in all cases of psoriasis, or even to the exclusion of external remedies, but rather regards it as an adjuvant to our treatment of the disease, and of value in those cases where the general health is good, and the urine has been ascertained to be free from albumen.

**Thibierge** at the Congress of Medicine held at Bordeaux (*Ann.*

*de Derm. et de Syph.*, t. vi., Nos. 8-9, Aug.—Sept., 1895) reported that he had tried the thyroid treatment in eleven cases of psoriasis. The administration of the remedy was continued from a fortnight to two months in daily doses varying from 2 to 8, and in exceptional instances 12, 16, and 20 grammes (1 gramme = a fraction over 15 grains), of fresh uncooked thyroid cut in thin slices, and given in tepid bouillon, and in total doses of 72 to 288 grammes. It produced the same general effects that have been noted in cases of myxœdema treated in the same way, namely headache, pains in the limbs, gastric disturbance, tachycardia, asthenia, and emaciation; the loss of weight, which was not checked by the excessive appetite developed in the patients after an initial period of anorexia, in the majority of the cases exceeded 12 lbs. in less than six weeks. Nevertheless, with equal doses the constitutional disturbance was less marked than in myxœdematous subjects, and Thibierge therefore suggests that in the pachydermic cachexia the general phenomena are not due solely to thyroidism, but are partly also the result of the process of "demyxœdemisation." The effects of the treatment of the psoriasis were *nil* in three cases (among them being the one in which the largest doses of thyroid were given, and in which thyroidism was most marked). In the other eight cases the result was favourable, but in none of them was a complete cure obtained. Thibierge holds that the treatment must be reserved for refractory cases in which all the classical methods of treatment have been tried in vain. Even in such cases it must be tried with great caution, and the administration of the remedy must be suspended at the first sign of thyroidism approaching a dangerous degree.

[My own experience, like that of most other dermatologists, is that thyroid extract, far from being a specific for psoriasis, is only occasionally useful, and even when it seems at first to be beneficial, the good effect is not permanent. I therefore use it only as a forlorn hope when the disease has resisted every other remedy in the therapeutic arsenal. I have for many years used the salicylates in psoriasis; in cases in which the rheumatic diathesis was a complicating factor they have appeared to do good, in others they had no particular effect. Arsenic seldom does good, and if injudiciously used may do much harm. Increasing experience teaches me to rely more and more upon local remedies, the persevering use of chrysarobin and parasiticide agents being in my hands the most effective treatment.]

## **2. Treatment of lupus.**

Liebreich (*Berlin. klin. Woch.*, April 8 and 15, 1895) stated

to the Medical Society of Berlin that he had obtained good results in cases of lupus by treatment with cantharidin. He uses the drug in hypodermic injections, or, in cases where prolonged treatment is likely to be required, he administers it internally. He uses a solution of 1 decigramme of cantharidin in 250 grammes of tincture of orange peel, to which is added an equal quantity of water. Thus each division of a Pravaz syringe of the capacity of 1 cubic centimetre corresponds to one-fifth of a decimilligramme of cantharidin. The dose should not exceed 2 decimilligrammes, and this should be reached only very gradually. In these doses cantharidin, according to Liebreich, never causes nephritis, although occasionally it may produce a passing irritation of the kidneys, as shown by the presence of a little albumen or blood in the urine. Its action in lupus is slow but sure, and he affirms that it cures the disease without leaving cicatrices. Cantharidin is also said by Liebreich to give good results in scleroderma and pityriasis rubra pilaris.

Liebreich's statements were corroborated by Hansemann and Saalfeld. The former had made a *post-mortem* examination on the body of a young girl who had been treated for lupus with cantharidin more than two and a half years before. She died of pulmonary phthisis of old standing, but the microscope revealed not the slightest textural alteration in the kidneys. In the parts (buttocks and face) which had been the seat of lupus, the skin was perfectly normal histologically, proving that lupus can be cured without scars being left when it has not in the first instance been cauterised, scraped, or scarified. Saalfeld also expressed his conviction that lupus could be cured by cantharidin without scarring. On the whole, however, Liebreich seems to have failed to convince the Society of the value of the treatment.

V. P. Zerenin, physician to the Maria Hospital, Moscow, states (*Sem. Méd.*, Oct. 9, 1895) that he has had very good results in cases of lupus by the application of compresses of tarlatan (a kind of fine muslin) saturated either with pure creosote or with a 10 to 30 per cent. solution of that substance in glycerine or oil. While admitting that this mode of treatment is slow in its action—a month, and even longer, being required for the cure of the lupus—and does not protect against recurrence, he recommends it as easy in application, and as leaving no unsightly scar.

A. Koehler (*Berlin. klin. Wochenschrift*, 1894, p. 845) advocates the combined method of tuberculin injections, followed by surgical intervention, in the treatment of lupus. The injections sometimes suffice to cure a very considerable portion of the disease, and the

operative measures subsequently required are thus rendered easier and less serious. The time for surgical intervention is when the tuberculin has ceased to have any effect on cicatrisation. Wherever it is situated, removal of the lupus tissue must be complete, as in the case of malignant tumour. When the wound is too large to be closed by suture, Thiersch's method of skin-grafting must be had recourse to. In desquamative forms of lupus, Koehler has several times brought about great improvement by superficial cauterisation with the point at white heat. In the most frequent cases of lupus of the face he contents himself with radically destroying the several nodules and ulcers with the actual or galvanic cautery, or the curette; when the latter is used it is followed up by the application of solid nitrate of silver. Prominent granulations are shaved off with a razor, their base being then cauterised. Care must be taken to keep the affected parts soft and supple by preventing the accumulation of pus beneath the eschars, crusts and scales. For the same purpose it is useful to cover the skin with a paste of equal parts of calomel and boricised vaseline, or with one composed of bismuth.

**Caruccio** (*Clinica Dermosifilopatica della R. Università di Roma*, 1894) gives a summary of the results in twelve cases of lupus in which the tuberculin treatment was tried in the clinic of skin diseases at Rome during the lifetime of Manassei. After a variable number of injections, of which twenty-eight or thirty were given, an improvement was noted in almost all the cases. In some it was considerable, in others it was slight. The phenomena of reaction, etc., were the same as those recorded by other observers.

[The good effect of tuberculin injections as a preliminary to local or surgical treatment in lupus was pointed out by me in the *British Medical Journal* of June 3, 1893, p. 1154.]

### 3. Treatment of pruritus.

In the Section of Dermatology at the annual meeting of the British Medical Association (*Brit. Journ. Derm.*, September, 1895), **McCall Anderson** introduced a discussion on the pathology and treatment of pruritus. While not denying the influence of reflex irritation in the production of pruritus, he was of opinion that most cases are dependent upon direct irritation of the nerve terminations in the epidermis. After referring to the subordinate importance of most local applications, and the use of gelsemium, cannabis indica (Dühring), and carbolic acid (Hebra) internally, he expressed his preference for the employment of electricity, atropia subcutaneously, or the coal-tar derivatives, such as anti-pyrin and phenacetin, in gradually increasing doses. If there is

any suspicion of nervous or nutritive debility, nerve tonics such as phosphorus, arsenic, or strychnia, alone or in combination, may be tried, the last two preferably by subcutaneous injection.

**Waldo** (Clifton) recommended counter-irritation in the form of a blister or mustard plaster over the vaso-motor centres of the affected part. **Stopford Taylor** (Liverpool) had no faith in constitutional remedies. He pointed out the necessity for removing sources of local irritation. In *pruritus hiemalis*, for example, the intensity of the itching can be greatly modified by avoidance of bathing. Again, in a now not infrequent form of *pruritus* occurring in cyclists, and affecting the parts about the perineum, the most important point of the treatment lies in protecting the surfaces from pressure or contact. **Barendt** strongly advocated the anointing of the limbs with warm olive oil, with a small percentage of carbolic acid. The oil should be rubbed in for five minutes, and in order to obtain satisfactory results it is necessary to insist that the operation be timed. Otherwise, the rubbing is usually continued for a much shorter period. He had found this method of treatment more generally useful than any other known to him.

**Leloir** (*Brit. Journ. Derm.*, December, 1894) says "it is generally necessary, whatever variety of dermato-neurosis one is treating, in the first place to prevent contact with the air, and to avoid mechanical irritation of the skin and sources of irritation." To fulfil this indication he has, since 1884, used "exclusive dressings," consisting of pastes or ointments spread in thick layers on linen, and covered with wadding or by skin gloves; the gelatines of Pick or Unna, covered with wadding; the soaps of Pick; medicated plasters and varnishes; drawers; knitted vests of various materials, etc. He has sometimes obtained rather good results by making numerous fine punctures into the part with the point of a needle. Vaso-constrictor remedies, such as alcohol, ergotin, ichthyol (the two latter particularly in alcoholic solutions), are sometimes successful. Among the other measures which he has found serviceable are counter-irritation (with cautery, iodine, ethyl, chloral spray, etc.) to the spine or along the course of nerves, tepid douches down the spine, and continuous and interrupted electric currents. In the way of internal treatment, he has given quinine, valerianates, ergotin, strychnine, hyoscyamine, iodo-bromide of potassium, bromide of camphor, and arsenic with advantage. Hygiene and constitutional treatment (when any definite indication exists) should not be neglected.

**Boeck**, of Christiania (*Monatsh. f. prak. Derm.*, Bd. xxi., No. 3,

August 1, 1895), recommends the following lotion in inflammatory pruriginous conditions in which there is no oozing :—

R	Talci pulv.	} āā	...	...	...	100.00
	Amyli					
	Glycerini	...	...	...	...	40.00
	Aquæ Plumbi q.s.		...	...	...	200.00
Ft.	lin.					

A small quantity of this is mixed with twice the amount of water when required, and shaken up to a very liquid consistence; it is then painted over the affected surface, and allowed to dry, so as to form a very fine powdery covering. If this application causes smarting, one-half of the aqua plumbi may be replaced by an equal quantity of 1 per cent. watery solution of borax. The results are said to be excellent in all dry forms of skin disease, especially acute papular eczema, chronic eczema, eczema of the genital organs and about the anus, lichen ruber and psoriasis with inflammatory accompaniments.

**Thibierge** (*Assoc. pour l'Avancement des Sciences*, Bordeaux, 1895) uses medicated varnishes and gelatines, especially one prepared according to the following formula :—

R	Gelatine	...	...	...	...	150 parts
	Grenétine*	...	...	...	...	100 „
	Gum Arabic	...	...	...	...	5 „
	Glycerine	} āā	...	...	...	300 „
	Boiling water					
	Oxide of zinc	...	...	...	...	100 „
	Pheno-salyl	...	...	...	...	2 „

This forms an adhesive varnish which dries readily and keeps in place from eight to ten days. Even when spread over large surfaces it produces no injurious effect. It causes a sensation of cold which is sometimes intense, but as long as the varnish remains uncracked it prevents itching. The best results are got in Hebra's prurigo, and in pruritus due to constitutional conditions; it is useful in the senile form, but less reliable, though often very effective, in lichen ruber and lichen circumscriptus. It should be reserved for the treatment of pruriginous conditions with excoriations or discharging lesions.

#### 4. Treatment of pityriasis versicolor.

**Leistikow** (*Monatsh. f. prakt. Derm.*, Bd. xx., No. 3, Feb., 1895) for some years found the application of precipitated sulphur in the form of powder the most effective treatment of pityriasis versicolor. Unna having shown that when a solution

\* A pure and transparent gelatine prepared from the skin and cartilages of young animals.



of bisulphide of calcium incorporated in a lanolin ointment is applied to the skin sulphurous acid is given off, it occurred to Leistikow that such an ointment might be employed with advantage in pityriasis versicolor. He therefore used it according to the following formula :—

R	Lanolin	...	...	...	...	10 parts
	Vaselin	...	...	...	...	20 "
	Sol. calcii bisulphurosi	...	...	...	...	40 to 60 parts
M.	Ft.	Ung.				

The effect was thoroughly satisfactory. After a daily use of this ointment for one or two weeks no trace of microsporon could be found in any of the cases so treated. For some time past he has substituted adeps lanæ for lanolin as follows :—

R	Sol. calcii bisulphurosi	...	...	60 parts
	Adipis lanæ	} āā	...	20 "
	Vaselini		...	...
M.	Ft.	Ung.		

To prevent relapse the patient is directed to wash the skin once a week with Eichhoff's soap ; this must be continued for one to two months.

### 5. Removal of tattoo marks and nævi.

Tattooing, according to Lombroso, is one of the marks of the criminal, but it is said to be becoming fashionable in society in England, and it is rumoured that some very exalted persons bear more or less artistic designs on various parts of their skin. It may therefore be useful for the practitioner to know how to remove these marks in case of need. Several methods have been suggested, the principle in all of them consisting in re-tattooing the part with some caustic substance. **Variot** uses a concentrated solution of tannin and nitrate of silver ; **Sherwell** carbolic acid ; **Ohmann-Dumesnil** speaks well of glycerole of papoid, and **Bailliot** in a recent thesis recommends bioxalate of potassium. **Brault**, at the Paris Société de Dermatologie et de Syphiligraphie (*Ann. de Derm. et de Syph.*, t. vi., No. 1, Jan., 1895), has used chloride of zinc successfully. After making the site of operation aseptic, he re-tattoos the part with needles *secundum artem*. After several trials he finds that the best solution for use is one of 30 grammes of chloride of zinc in 40 grammes of sterilised water. At the time of operation the tattooing becomes rather pale, and the needle-pricks appear surrounded with white. At the border of the tattooed surface a raised white edge forms, caused by raising of the epidermis, and the neighbouring parts become slightly reddened ; this, however, quickly disappears. With

proper attention to cleanliness there is no intense reaction. Within a day or two after the operation the tattooing becomes darker, the white areola becomes yellowish, and a crusty superficial eschar forms, which separates on the fifth to the tenth day. The method is said by Brault to be cleanly, simple, and rapid; it is not at all painful, and the results, remote as well as immediate, are "very encouraging." Sometimes a further operation may be necessary, but Brault says he has treated several cases with success. The delicate point in the procedure is to adjust the amount of therapeutic action to the depth and nature of the tattoo mark. Brault has used the same method for the removal of nævi; with superficial pigmentary nævi it is very successful, but with vascular nævi the results have been less satisfactory. Unless the treatment is carefully carried out with strict regard for the rules of scientific cleanliness, there is danger that it may give rise to suppuration and scarring.

#### **6. Epilation in favus.**

At the Congress of the Società Italiana di Dermatologia e di Sifilografia held in Rome in October, 1895 (*Supplemento al Policlinico*, Oct. 26), Gaetano Ciarrocchi insisted on the necessity of epilation in favus. He treated a series of twelve cases of favus, affecting the whole scalp, by epilating one half of the head and leaving the hair on the other, and applying over both halves an ointment composed of sulphur and salicylic acid. In every case the epilated half was cured in a space of time "immensely shorter" than the other. Ciarrocchi's view as to the necessity of epilation in favus was endorsed by Mibelli, Majocchi, Campana, and De Amicis.

#### **7. Casein salves.**

Unna (*Monatsh. für prakt. Derm.*, xx., No. 10, March 15, 1895) recommends a pomade composed of 14 parts of casein, 0.43 of alkalies, 7 of glycerine, 21 of vaseline, 1 of any antiseptic agent, with an amount of water sufficient to make up the hundred parts. This constitutes a kind of artificial milk, thick and viscous. It is a preparation intermediate between fatty ointments and varnishes. When applied to the skin it dries, forming a thin, very elastic layer. In consequence of its richness in fat it can, unlike varnishes, act deeply. Neither lime salts nor any considerable proportion of acids should be mixed with it, as these substances coagulate the casein. Slightly acid substances, however, such as tar and balsams, may be mixed with it, but in the case of tar, at least, it is advisable to add alkaline soap in the proportion of 1 part of the soap to 4 of the tar. On the other hand, *alkalies and alkaline salts*, as well as *ichthyolate of ammonium*,

thicken it so that when it is to be made the vehicle of such substances, the proportion of casein must be diminished. The casein salve can be used as an excipient for neutral substances in the form of powder, provided an equal proportion of vaseline be added. It can equally well be used for mercurial pomades. Its special advantage as an excipient is the great facility in applying it. Unna has found it very useful associated with ichthyol, balsam of Peru, and tar, in the treatment of every kind of pruriginous condition. It may also be employed as a protective varnish, and may thus serve as a prophylactic against sunstroke, as well as for the treatment of freckles and xeroderma pigmentosum. It may also be employed for the application of paint to the skin.

### 8. Salve pencils.

Audry (*Monatsh. für prakt. Derm.*, xx., No. 10, May 15, 1895) has introduced a new form of pencil composed of 70 parts of cacao butter to 10 of paraffin and 10 of olive oil; to this base are added from  $2\frac{1}{2}$  to 15 parts of the medicinal substance which it is desired to apply. The paraffin and part of the cacao butter are melted, and later the remainder of the cacao butter is added. The medicinal substance is mixed with the oil, and is next added to the melted butter and paraffin. The pencils are formed in glass tubes. The proportion of the ingredients constituting the excipient varies according to the nature of the medicinal substance. The following formulæ are given as examples:—

1.	Cacao Butter	75 parts.
	Paraffin	10 „
	Olive Oil	5 „
	Chrysarobin	10 „
2.	Cacao Butter	60 parts.
	Paraffin	10 „
	Olive Oil	15 „
	Resorcin	15 „
3.	Cacao Butter	55 parts.
	Paraffin	10 „
	Olive Oil	15 „
	Sulphur	15 „
4.	Cacao Butter	80 parts.
	Paraffin	15 „
	Olive Oil	2.50 „
	Sublimate	2.50 „

### 9. Sperm whale oil as a constituent of ointments.

Professor C. Boeck, of Christiania (*Monatsh. f. prakt. Derm.*, Bd. xxi., No. 5, September 1, 1895), after referring to an article by G. Guldberg (*ibid.*, Bd. x.), in which the great penetrating power of sperm whale oil was pointed out, calls attention to the

fact that it is also, to a certain degree, antagonistic to the life and growth of bacteria in the skin. He has taken advantage of this property of the oil, chiefly in the treatment of acne vulgaris, and with good results. He generally uses the following formula :—

R	Camphoræ	}	...	...	...	āā	0·30 to 0·50
	Acid. salicyl.						
	Sulphur. præcipitat.		...	...	...	...	10·00
	Oxydi zinci	...	...	...	...	...	2·00
	Saponis medic.	...	...	...	...	...	1·00
	Ol. physeteri (seu chænoceti—sperm whale oil)						12·00

The camphor is added to disguise the smell of the whale oil. The ointment is applied in the evening, and in the morning it is washed off with soap and water.

## 10. Adeps lanæ.

**A. Zack** (*Wratch*, No. 2, 1895; *Ann. de Dermatologie et de Syphil.*, June, 1895) has used *adepts lanæ* as a basis for "cooling" ointments and other applications to the skin. This fat is especially useful on account of the much larger amount of water it takes up than other fats—*e.g.*, *adepts lanæ hydrosus* (lanolin). It is well adapted to the manufacture of soothing applications for acute inflammations, and Zack gives a number of useful formulæ, some of them being of his own devising, while others are quoted from Unna.

Two of these formulæ are appended :—

*Cold cream.*—Adeps lanæ, 10 grammes; almond oil, 10 grammes; orange flower water, 20 grammes.

*Paste for use in eczema.*—Oxide of zinc, 5 grammes ; talc, 5 grammes ; olive oil, 15 grammes ; lime water, 15 grammes ; adeps lanæ, 10 grammes ; tincture of benzoin, 5 grammes.

## 11. Gallanol.

The results published by Cazeneuve and Rollet (*see* "Year-Book of Treatment" for 1894, p. 377) induced **Max Joseph** (*Berlin. klin. Woch.*, February 25th, 1895) to try gallanol as a remedy in different affections of the skin. As regards psoriasis, he came to the conclusion that gallanol could not be compared with chrysarobin, nor even with pyrogallic acid. As, however, it has the great advantage of not staining either the skin or linen he thinks it may legitimately find a place in the treatment of psoriasis of the face or scalp, and in the case of women and children, and generally whenever rapidity of cure is of no particular consequence. In eczema gallanol proved, in Joseph's hands, an utter failure, not even having any effect on the itching. It was more useful in cases of tinea tonsurans and eczema marginatum of the same nature. The effects in these cases were the same as in psoriasis.

# DISEASES OF THE EYE.

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## I. The conjunctiva.

A special method of treating cases of conjunctivitis has been recommended by Vacher of Orleans in a communication made to the Ophthalmological Congress in Paris in May, 1895 (reported in Galezowski's *Recueil d'Ophthalmologie*, 3 Sér., 17 Année, No. 6, Juin, 1895, p. 327), which consists in prolonged subpalpebral irrigations. He uses a caoutchouc pear, with a glass tube, both of which can be rendered perfectly aseptic by boiling in a 1 per cent. solution of sodium carbonate. The degree of force to be used in projecting the current must be determined with intelligence and with due regard to the condition of the cornea. In regard to temperature the injection should be hot in acute, and cold in chronic cases. The lotion employed was nitrate of silver  $\frac{1}{1000}$ , an ounce or more being injected on each occasion. He finds that the injection of  $\frac{1}{500}$  is painful, and of  $\frac{1}{200}$  is injurious to the cornea, unless a small quantity only is injected, followed by an injection of salt and water. Permanganate of potash in the proportion of from  $\frac{1}{4000}$  to  $\frac{1}{1000}$  was well borne and effective. The discoloration caused by the permanganate can be made to disappear immediately by the application of a few drops of a weak solution of the bisulphite. Cyanide of mercury in the proportion of  $\frac{1}{10000}$  to  $\frac{1}{5000}$  is serviceable, and has no action on instruments. It occasions little or no pain. Solutions of the perchloride in proportions varying from  $\frac{1}{10000}$  to  $\frac{1}{3000}$  proved more painful than the others, but the results obtained were excellent. He injected after their use solutions of sodium chloride, with or without sodium salicylate. Pheno salyl solutions in proportions from  $\frac{1}{500}$  to  $\frac{1}{1000}$  were well borne, and seemed to act well, though not quite so satisfactorily as those of the sublimate. In the discussion which followed the reading of this paper, Galezowski stated that he preferred to employ *from the beginning*, cauterisations of the surface with a solution of silver nitrate of  $\frac{1}{40}$  repeated twice a day, in view of the

ignorance in general of the nature of the bacteria setting up the conjunctivitis.

The introduction of the plan of making subconjunctival injections of the perchloride of mercury is due to Professor Reymond of Turin, who employed it as a means of combating sympathetic ophthalmia instead of making injections into the vitreous, which, as experience had demonstrated, often proved extremely unsatisfactory. Abadie subsequently adopted this plan. It has not been, however, much practised in England. During the past year it has been the subject of much discussion on the Continent.

A. Darier (*Annales d'Oculistique*, t. cxii., p. 381, Dec., 1894), who is an advocate of the proceeding, meets the objections that have been raised to it in a sensibly-written paper. Some, he observes, have contended that it produces great pain, and may even aggravate the disease for which it is prescribed; but these results, he maintains, are due to the solution employed being of too great strength. Others doubt whether the solution ever reaches the interior of the globe, since the albuminate of mercury supposed to be formed is insoluble; but here, again, he doubts whether any precipitation occurs when the solution is weak, whilst similar good effects are observed after the subconjunctival injection of the cyanide of mercury, which does not cause a precipitate. Others, again, are of opinion that the minute fraction of the salt which permeates the interior of the eye is too small to produce any effect; in reply to which Davies points out that the quantity of mercury which can enter the globe in ordinary treatment, or even after hypodermic injections, must be very small, though the curative effects are well substantiated. The cases in which this method of treatment has proved most successful in his hands are bad cases of phlyctenular ophthalmia, in which yellow ointment has proved inefficacious, and which have a tendency to go on to ulceration of the cornea with hypopyon. In such cases the subconjunctival injection may render galvano-cautery, to which many patients object, unnecessary. Cases of infectious ulcer form another class in which this plan may be adopted with advantage. It is especially serviceable in the early stages of benign parenchymatous keratitis, the cloudiness of the cornea contracting towards the centre with each injection. The injections should be made at different parts of the periphery of the cornea. When the infiltrations have become limited to the centre of the cornea, and appear to lose their efficacy, he recommends massage of the cornea with mercurialised lanolin. Injections of mercurial salts should not be

used during the acute, violent, pannus stage of parenchymatous inflammation, for at this stage of the disease any local irritant plan of treatment is contraindicated. They may be practised with advantage during the period of decline. In all instances appropriate general treatment should be adopted. Their employment in cases of iritis, iridocyclitis, and of iridochoroiditis requires discrimination. In all acute cases they are contraindicated until the violence of the attack has been subdued by antiphlogistics. In the later stages they often prove of great service, but even here attempts should first be made to ascertain whether the eye will bear this method of treatment, very slight irritation in some eyes lighting up a sharp attack of inflammation. So also subconjunctival injections are useful in cases of retinitis, especially when the inflammatory troubles affect the macular region. Their good effects are often observable after two or three injections, though sometimes a considerable number are required. They are found to be serviceable in various affections of the optic nerve, especially in those proceeding from infection. Good results from this method of treatment have been reported by various observers.

**De Wecker** (*Annales d'Oculistique*, cxiii., June, 1895, p. 400), who is not enthusiastic in regard to it, uses large doses, injecting a Pravaz syringe full or half full of a solution of the perchloride containing one part in 2,000 of sterilised water, and a small quantity of eserine salicylate. This quantity he injects once daily for three days, after previous disinfection of the lashes with a 1 per cent. solution of oxycyanide of mercury, and cleansing the conjunctival sac with a 4 per cent. solution of boric acid. By a similar proceeding excellent results in the same forms of disease, and especially in severe corneal ulceration, have been obtained by the Italian physicians **Sgrosso** and **Scalenci** (*Lavori eseguiti nella Clinica Oculistica di Napoli*, t. iii., 1893).

**Schulte**, one of the assistant physicians in the ophthalmic hospital at Strassburg (Zehender's *Klinische Monatsblätter für Augenheilkunde*, Jahrgang xxxiii., 1895, p. 35), has practised it extensively at Strassburg, using 1 part to 1,000 of the perchloride of mercury free from common salt; the eye being subsequently bandaged, and the patient being kept for two days in bed. The injection was sometimes repeated on the fourth day, but it was never done more than five times consecutively. No unpleasant consequences occurred. Schulte, like Darier, found this plan of treatment serviceable in diseases of the choroid, especially in those in which there was exudation with opacities in the vitreous humour. Improvement took place in retinitis specifica, keratitis



parenchymatosa, and in iritis and iridocyclitis. Schulte seems to consider that sufficient evidence has not hitherto been adduced to demonstrate unequivocally the value of such injections, since belladonna fomentations and other remedial measures have been employed by those who practised them, to which the good results described might be attributed.

The serious consequences which almost always follow an attack of diphtheritic conjunctivitis when treated with solutions of nitrate of silver, a plan not infrequently adopted before von Graefe drew attention to its injurious results, render the observations of **Morax** (*Annales d'Oculistique*, An. 58, t. cxiii., Liv. iv., p. 238) on the value of antitoxic serum as a remedy in this disease of much interest. Morax states that in his experience the disease is usually benign, and that the pseudo-membranous exudation is generally confined to the inner surface of the lids, and does not extend to the bulbar conjunctiva. Lesions of the cornea were absent. He records the details of several cases in which antitoxic serum was injected, in quantities varying from 10 to 30 c.cm., and where recovery took place. In each case appropriate bacteriological culture demonstrated the presence of the bacilli of diphtheria.

The subconjunctival injection of Roux's serum has also been recommended in cases of diphtheria of the ocular conjunctiva by **A. Terson** in a paper read before the Société Ophtalmique de Paris (*Annales d'Oculistique*, t. cxiii., 1895, p. 424) and by **Gayet** (*Archives d'Ophtalmologie*, t. xv., No. 3, 1895, p. 137). Good results have also been reported by Coppez, who made use of Behring's serum (*Journal de la Société de Méd. de Bruxelles*, 1895), and by Desseaux and Jessop, who used Klein's antitoxin.

## **2. Pterygium.**

The disposition of pterygium to recur after removal is well known, and several operators have counselled that the surface of the cornea exposed on detachment of the flap should be lightly rasped. **Deschamps**, of Grenoble (Rapport du Congrès de la Soc Française d'Opht., in Galezowski's *Recueil*, June, 1895), has practised this proceeding in a methodical manner. He seizes the pterygium near the apex, and detaches it with a cataract knife; he then thoroughly scrapes the little whitish border which is usually left at the margin of the wound, directing and collecting the fragments towards the periphery of the cornea. The bulbar conjunctiva should then be freed to some extent and the edges brought together. If the fragment removed is of rather larger size, so that on bringing the edges of the conjunctiva

together a falciform fold overlaps the cornea, he makes two incisions parallel to the borders of the original wound, and thus relieves tension.

### 3. Cornea.

**Santaracchi**, of Cairo (*Annales d'Oculistique*, t. cxiv., Sept., 1895, p. 189), has suggested a somewhat novel plan of treatment for various ulcers of the cornea, to which he has given the name of "hydraulic curettage." Whoever desires to devote himself to the serious study of diseases of the cornea should, he observes, domicile himself in Egypt. Lesions of the cornea there constitute 70 per cent. of all the diseases of the eye, and in many cases they are of a very serious nature. The treatment proposed by **Saemisch**, of dividing certain severe forms of ulcer, has been of great service, but more recently it has been replaced by galvano-caustic means; and now a still better plan, which has also been practised by **de Wecker**, is, he thinks, the purification of the ulcer, in cases of ulceration of the cornea, by means of a strong current of water. He employs a solution of the perchloride of mercury containing one part in 1,000 of water, and directs the current from the large silver point of an **Anel's** syringe. The current is strong enough to remove thoroughly all fragments of necrosed and unhealthy tissue. The only objection to the instrument is that it contains so small a quantity of liquid; but it is easy to obtain a larger syringe with an equally fine nozzle, or the injection may be repeated with the ordinary syringe. A little solution of cocaine may be instilled before the commencement of the injection; and inasmuch as the iris is often affected, a few drops of an atropine solution may be employed. The current of water has this advantage over cutting instruments, that it removes only the disorganised part, and has no action on the healthy tissue. The reaction is very trifling. The parts of the cornea which are still transparent may become grey, but this disappears in the course of a few hours. This method gives great relief to the pain and photophobia. The tissue of the cornea readily undergoes reparation, often remaining transparent. In cases of abscess of the cornea a slight excision of the anterior wall may be practised, and the current, when directed upon the exposed surface, will clear away the contents.

### 4. Iris.

That sympathetic ophthalmia after traumatism is a very dangerous affection is generally admitted, but careful research into the records of ophthalmic cases has satisfied **Rognan** (*Annales d'Oculistique*, t. cxiv., p. 81, 1895) that it is not always fatal to vision, and that recovery may occasionally take place. In

Schiess's practice at Bâle four cases recovered in ten years. Rognan himself has had one successful case. Schirmer, Hirschberg, and Laqueur have each had one case. It must always be remembered that relapses are likely to occur, even when a considerable period has elapsed from the date of the original injury. The removal of the injured eye is no doubt the safest proceeding; but the cases cited by Rognan show that the vigorous prosecution of remedial measures such as local bleeding, mercury, atropine, and prolonged rest of the eye, may occasionally terminate in very considerable recovery of vision, and that a hopeless forecast should not be given till such remedial treatment has been fairly carried out.

5. Lens.

Thompson of Indianapolis (*Ophthalmic Review*, Oct., 1894, p. 313) states that he has had the opportunity of observing a considerable number of cases of a certain form of lenticular opacity which do not proceed to complete or mature cataract, and in regard to which, therefore, a favourable forecast may be given. The position of the opacity in these cases is in the form of a line or cloud at the lower and inner part of the lens, running downwards and inwards, or, very rarely, downwards and outwards. He has also found that there is another kind of opacity, the "arcus senilis lentis," which, however, need not necessarily be associated with advancing age, and which occurs most frequently in women, but has little or no tendency to develop. [The correctness of these statements will probably be admitted by the majority of ophthalmic surgeons.]

6. Cataract.

Frank Ring (*Medical Record*, Feb. 23, 1895) has compared the results of over 2,000 cataract operations performed by various ophthalmologists of position and experience. Of these, 1,123 were performed without and 1,032 with iridectomy. The results are given in the following table :—

	Simple without	Extraction Iridectomy.	Combined with
Good results ...	90·82		88·08
Partial failure...	6·30		7·45
Complete loss ...	2·88		4·47
Suppuration ...	1·30		1·91
Iritis ...	11·82		13·15
Acuteness of vision =	0·48		0·34
y 2	.		

It will be seen that the best results were obtained in those cases in which iridectomy was not performed.

### 7. Lens.

The propriety of the removal of the lenses in cases of high myopia is still under discussion. Von Hippel, who is an advocate of the practice, gave the results he has obtained from operating on sixty cases, in a paper read before the Ophthalmological Society of Heidelberg (Report of the Congress in *Annales d'Oculistique*, t. cxiv., Sept., 1895, p. 222). The degree of myopia varied from 10 to 24 diopters in the several cases, and the ages of the patients were from infancy to fifty years. It was found that choroidal lesions, even when extensive, were not aggravated by the operation. In all instances discission was practised after the instillation of atropine, and at the expiration of about a week the softened mass of the lens was evacuated without iridectomy. In three cases visual acuteness rose to  $\frac{6}{8}$ , and in most instances it was from four to six times better than before the operation. All those who had undergone it preferred the eye operated on to the other one. Von Hippel had seen no case of glaucoma or detachment of the retina consequent upon the operation.

In the discussion upon this paper Sattler gave the results of his experience, which extended over no less than eighty-six cases, in which the myopia varied from 15 to 20 diopters. He considered that the operation was not called for unless the degree of myopia was above 12 diopters. The majority of his patients were young, varying in age from ten to fifteen years. The sharpness of vision was tested for near objects. The results do not appear to have been so satisfactory as those of Von Hippel. In eighteen cases the improvement was inappreciable; in twenty-eight cases it was only slight. Detachment of the retina occurred in four instances after the operation; in two cases infection occurred. A large number of the cases are unaccounted for. Thier of Aachen stated that detachment of the retina was observed in some of the fifty cases of myopia on which he had operated. Fuchs remarked that he had seen myopia progress after the removal of both lenses. The operation could not therefore be regarded as a means of arresting the advance of the disease.

Thier of Aachen (Report of the Eighth International Ophthalmological Congress in Edinburgh, 1894, p. 173), Pergens of Maeseyck (*Klin. Monatsblatt. f. Augenheilkunde*, Feb., 1895, p. 22), and Fukala of Pilsen (*ibid.*, p. 181) also give reports favourable to the performance of extraction in high myopia.

Fukala believes that, taking the average, there is an increase in the acuteness of vision amounting to double or treble the original amount. In no case of Pergens's was the improvement less than twofold; in three cases it was nearly fourfold. Detachment of the retina occurred in two cases under Thier out of thirty-eight.

The result of a discussion in the Ophthalmological Society of the United Kingdom, Jan. 31, 1891 (*Ophth. Rev.*, vol. xiv., p. 60), on a case where the lens was removed in high myopia by Wray, was unfavourable to the performance of this operation, cases of iritis, suppuration, and detachment of the retina having been observed by different operators.

### 8. Refraction.

Although the fact that as age advances loss of accommodation of the eye for near objects proceeds (as a rule) *pari passu* has long been known practically, it remained for Donders to demonstrate the physical conditions which occasioned the defect, the precise period at which it became noticeable, the rate at which it progressed, and the manner in which it could be neutralised by the use of appropriate glasses. He fixed the limit of commencing presbyopia in a healthy eye arbitrarily at the age of forty, at which age the near point has become more distant than twenty-two centimetres. At forty no glass is required; but from this date onwards, owing to the progressive failure in the power of accommodation, convex glasses are required, increasing in the ratio of a + 1 D for every five years; so that at forty-five + 1 D is requisite, at fifty + 2 D, at fifty-five + 3 D, at sixty + 4 D, and at sixty-three, when the amplitude of accommodation is reduced to zero, 4.5 D. In practice, however, this series of glasses is found to be too strong, as it compels the patient to read or work at twenty-two centimetres; and in a paper devoted to the subject Landolt (*Archives d'Ophthalmologie*, t. xv., May, 1895, p. 274) substitutes the following series:—at forty, 0.25 D; at forty-five, + 1 D; at fifty, 1.5 D; at fifty-five, + 2 D; at sixty, 2.5 D; at sixty-five, 2.75 D; and at seventy, 3.5 D, which are all adapted to enable the patient to read at the distance of thirty centimetres.

In speaking of the employment of the subjective method of optometry, Bull of Paris (*Congrès d'Opht.*, Paris, May, 1895; reported in *Recueil d'Opht.*, June, 1895, p. 352) stated that he believed the greater number of errors committed in the determination of refraction by this means was due to the fact that observers had not changed their method of examination since the discovery of astigmatism. It is recommended in books that the

degree of myopia should be determined by the feeblest glass which gives good vision, and of hypermetropia by the strongest glass. These two rules are now, he thinks, frequently the cause of error, because the spherical glass thus found is retained in the frame, and the determination of the amount of astigmatism is proceeded with by means of trials with successive cylinder glasses, or by the clock. Hence, if astigmatism be present, the spherical glass selected over-corrects the myopia present, or under-corrects the hypermetropia, and the patient is disposed to accommodate sometimes for one of the rays of the clock, sometimes for another, and his replies are unsatisfactory. Bull's method of examination is to correct or render emmetropic the least refractive meridian of the eye by a spherical glass. The error of refraction which then remains is always that of simple myopic astigmatism, which he corrects with a concave cylindrical glass. The trials with concave and convex glasses are abolished by this means, and it is needless to inquire whether the case is one of mixed, myopic, or hypermetropic astigmatism.

### 9. Retina.

Although our knowledge of the pathological changes occurring in the retina, and of the appearances under the ophthalmoscope by which they can be recognised and discriminated, has made great advances, the treatment has not correspondingly improved, and such an affection as detachment of the retina continues to baffle our best efforts. The objects here are threefold:—To evacuate all or part of the subretinal fluid, and of this liquid alone; to prevent or remove the effects of the contraction of the filaments and membranes that form in the vitreous; and to facilitate the permanent reapplication of the membrane in its natural position, with as little damage as possible to the other tissues. With these ends in view various suggestions have been made. On the surgical side: simple puncture, with or without the use of the aspirator; drainage; dilaceration of the detached retina; iridectomy; the application of the galvano-cautery, with or without puncture; the injection of different fluids after puncture; and even the suture of the retina to the sclerotic. On the medical side: prolonged rest in the recumbent posture; the compress-bandage; injections of pilocarpin; mercurial preparations; and every kind of antiphlogistic.

Terson (*Annales d'Oculistique*, t. cxiv., 1895, p. 22) has recently strongly recommended the employment of electrolysis, already proposed and adopted by Abadie and Schoeler. This proceeding acts by promoting absorption into the adjoining vessels, and by modifying the composition of the contained liquid.

It has a powerful coagulating effect, especially when the *positive* pole (which represents cauterisation by acids) is applied to the part affected. The coagulating power of the negative pole is much feebler. The strength of the current should be carefully graduated; it should not exceed five milliampères, and should remain constant throughout the sitting. In the course of one year (1894-5) Terson has treated seventeen cases of detachment of the retina by this method. Of these, four were too recent to furnish any data, one was unsteady, and on a second trial the wire broke. Of the remaining twelve, nine had already lost one eye, and the other had been affected for periods varying from two to eight weeks, except in one, where the detachment had taken place nearly three years previously. The general results were that the application of the galvano-cautery was useless or injurious in cases of old standing; whilst in more recent cases the results were more satisfactory, and in one case, which was of only eight days' duration, and in which the eye was almost entirely lost, recovery took place after four days' treatment, with a sharpness of vision of  $\frac{1}{10}$  and normal field.

**R. Deutschmann** (*Beiträge zur Augenheilkunde*, Heft xx., 1895), impressed by the views of H. Müller and Stellwag, as well as of Leber, to the effect that detachment of the retina is due to a shrinking of the vitreous humour, consequent upon the formation and contraction of wavy filaments in it, has suggested a novel plan of treatment. This consists in the evacuation of the sub-retinal fluid by puncture, by which the detached retinal fluid is enabled to reapply itself to the choroid, and the prevention of recurrence of the detachment by the intra-ocular injection of the perfectly fresh vitreous of a rabbit with carefully sterilised instruments. He records several cases which seem to have been most satisfactory in the results obtained. Of one, he remarks, "No commentary is needed in regard to this case. According to all experience it was irretrievably lost; but through the bold expedient of transplantation of the rabbit's vitreous, the vision was not only improved, but restored nearly to the condition of a normal eye." In another case, in which there was almost total separation of the retina, whilst the vision was reduced to mere perception of light, the patient was able after the transplantation to guide himself perfectly well in the street. The good effects in several of the cases have been persistent, and have lasted already for several months.

#### **10. Squint.**

**Hansell** of Philadelphia is of opinion (*Ophthalmic Review*, Oct., 1894, p. 332) that both in monocular and alternating squint



from hyperopia the squinting eye is invariably turned upwards. This he attributes to the circumstance that the innervation of the elevators for the rectus superior and inferior oblique are both supplied by the third nerve, while of the depressors, including the inferior rectus and superior oblique, the former only is supplied by the third nerve. Now, over-stimulation of the third nerve in hyperopia causes over-action of all the muscles supplied by that nerve; and as the external rectus cannot maintain lateral equilibrium, the elevators are only in part antagonised by the depressors, and an upward deviation results. The treatment, founded on these data, he recommends for monocular squint is tenotomy of both internal recti, and tenotomy of the superior rectus of the squinting eye and possibly of the inferior rectus of the fixing eye. The endeavour to correct by operation on the squinting eye alone is, he thinks, greatly to be deplored. In alternating squint only the lateral muscles should be operated upon. At the forty-fifth annual meeting of the American Medical Association (see Report of same, 1894), **Eaton** of Portland and **E. H. Price** of Nashville read papers on cyclophoria or insufficiency of the oblique muscles. This condition is detected by viewing through a double Maddox prism held in the middle line at the ordinary working distance, or by Maddox rods before both eyes and a double prism before one of them and a light at twenty feet. With cyclophoria present the median lines are seen by the patient not to be parallel, but oblique. The treatment recommended was that suggested by Dr. Savage, viz. the use of cylinders placed obliquely before the two eyes so as to produce the rotation of a line looked at; this rotation must be varied by turning the cylinders so as to give rhythmic exercise to the oblique muscles.

**R. Williams** (*Ophthalmic Review*, Dec., 1894). The difficulty of securing perfectly satisfactory results in cases of squint by tenotomy has led several surgeons to advocate the alternative operation of advancement of the opposite muscle; to assist and not to diminish the leverage of the recti muscles, Williams has devised a method of advancement which he finds practicable and efficacious. The eye is cocainised, the lids separated with a speculum, and a radiating incision is made in the conjunctiva from the margin of the cornea towards the canthus over the tendon of the muscle to be operated on. The conjunctiva is then separated from the sclerotic on each side of the incision for a short space. An opening is next made in the capsule, near the insertion of the muscle, and the tendon picked up with the *strabismus* hook, a snip with scissors facilitating the emergence of the point. This instrument is now transferred to an assistant.

As the next step the surgeon seizes the conjunctiva with forceps near the margin of the cornea on either side of the incision, and the needle is passed under that membrane for some distance beyond the insertion of the muscle. If a strand of the surface of the sclerotic near the corneal margin is included, so much the better. The needle having been brought out, the body of the muscle is now seized as near the canthus as may be necessary, and the needle passed through it at right angles to the direction of its fibres. It is then carried under the conjunctiva of the opposite side, and brought out at the margin of the cornea at a point corresponding to the point of entrance on the other side. The tendon and conjunctiva are thus held in a single loop. The tendon is now divided, and retracts. The two ends of the thread are next carried over the nose, and there held by the assistant whilst the operator divides the opposing muscle. The knot should then be slowly and gently tied. At the completion of the operation there ought to be a decided deviation in a direction opposite to the original squint.

Chalmers Prentice of Chicago ("The Eye in its Relation to Health," 1895, p. 189) devotes a chapter of his work on the eye to the consideration of the best operative procedure to be adopted in cases of squint. He recommends the employment of ligature plates made of aluminium, with dimensions of about 3 mm. in width, from 4 to 12 mm. or more in length, and weighing from one-eighth to three-fourths of a grain. They are bent so as to fit the curvature of the eye, and are slightly notched at each end, with a groove running from each notch the entire length on the convex surface, into which the ligature falls, and hence induces no irritation. An incision is made over the middle of the tendon in the direction of its fibres, and the muscle is to be entirely freed from its capsular and ocular attachments. A Stevens hook is then passed behind the muscle, and traction made towards the cornea; a second hook is passed from the opposite side of the tendon, and traction made in the opposite direction. A small curved needle, carrying one end of a ligature, is made to enter one margin of the muscle as far back from its insertion as necessary; it must pass transversely through its fibres, and come out at the opposite margin. Each end of the ligature is passed from the under side of the margin of the muscle close to its scleral attachment. The hooks, being now disengaged, are to be removed, and each end of the ligature brought through the conjunctiva about 3 mm. in the direction of the cornea, and about 8 or 10 mm. apart. The two ends of the ligature should be tied with but little puckering, and therefore not too closely.

The muscle may now be advanced, and the length of the ligature plate required determined. With the aid of forceps one of its notched ends is made to engage one side of the ligature. A strabismus hook is now used to make traction on the opposite side of the ligature, and to slip it into the notch at the other end of the plate. The forceps and hook are now removed, and the ligature and knot fall into the groove on the plate, so that no contact with the conjunctiva is made, and no inflammation excited. If the advancement is found to be insufficient, a longer plate can be used; or *vice versa*. It may be removed in the course of three or four days. If the tendon be not divided, it becomes folded or tucked on itself, and is fixed by the slight inflammation that occurs. By this operation he has rectified a deviation of  $30^{\circ}$ .

## II. Glaucoma.

The last word has certainly not yet been said in regard to the treatment of glaucoma. In a communication made to the *Annales d'Oculistique* (t. cxii., p. 257)—(of which journal there is now, it may be remarked, an English translation)—de Wecker gives the following account of an operation he has devised, and to which he gives the name of "combined sclerotomy." Eserine should in the first place be instilled, and then immediately before the operation two drops of a 2 per cent. solution of cocaine dropped into the eye about to be operated on. He then introduces his stop-knife, 6 millimetres wide, as far as to the stop, through the sclerotic, at a distance of 1 millimetre from the transparent border of the cornea, above and in the vertical meridian. The aqueous humour is allowed to drain away slowly, to prevent prolapse of the iris. A pair of delicately-constructed iridectomy forceps are now introduced into the anterior chamber; and when their carefully-rounded points are seen at a distance of 2 millimetres from the transparent border of the cornea, the blades are opened, the iris seized, and the instrument pushed on towards the centre of the cornea, so as to effect an iridodialysis extending for a distance of 6 or 8 millimetres along the periphery of the iris. Sharp hæmorrhage into the anterior chamber accompanies the act. The forceps must then be disengaged from the iris, and withdrawn with the fangs open, lest the iris should be drawn out through the wound. Finally, a drop of eserine should be dropped into the eye.

Galezowski has contributed a series of articles to his own *Recueil d'Ophthalmologie* (August, Oct., Nov., 1894), in which he endeavours to show that glaucoma is really a lymphangitis of the eye, and that it can be cured by repeated sclerotomies.

Parinaud (Report of Société Française d'Ophthalmologie in

*Archives d'Ophtalmologie*, t. xv., p. 457) maintains that posterior sclerotomy is indicated in the non-irritative forms of glaucoma. If it be not successful, iridectomy can still be performed.

## 12. Injuries.

Wounds of the lids often lead to considerable deformity in the process of cicatrisation, unless care is taken at an early period to secure exact apposition of the several tissues. Gayet, in a paper read before the French Surgical Congress held in Lyons (reported in *Annales d'Oculistique*, t. cxii., p. 269), has some sensible observations on the subject. He says: When the skin only is implicated, union is easily effected by simple apposition and the use of sutures. But it is often cut obliquely, so that two bevelled edges are formed. These require careful superposition, or a depression will infallibly be left. When the cut is so deep that the muscles are divided, they should be sought for and fixed by sutures—which must be left in the wound—before the edges of the skin are united. When the tarsus is implicated, the greatest attention to details is required, especially when the wound is near the *puncta lacrimalia*. It is rare that the mucous membrane is not ruptured when the tarsus is divided, and the lid is then completely torn or cut through. If the wound be recent, it is still easy to secure perfect juxtaposition of the parts; but if some days have been allowed to elapse, the lips of the wound must be forcibly separated, without hesitation, if required to detach adhesions that have already formed between the skin and the conjunctiva. Aseptic proceedings should be adopted before the several tissues are adapted to each other. In the event of the margins of the orbit being damaged, all loose fragments of bone should be carefully removed.

In some cases of contusion of the eye and orbit a condition of paralysis more or less complete (*ophthalmoplegia totalis vel partialis*) is the result, and such cases are often left to Nature, with the result that the movements of the globe are either altogether lost or remain considerably impaired.

Vignes brought before the Société d'Ophtalmologie de Paris (*Annales d'Oculistique*, t. cxii., p. 270) a case in which, after such an accident, the movements of the eye remained greatly restricted. No improvement was observed till Vignes bethought himself of trying the effects of a stereoscope with movable mirrors. Benefit was quickly experienced, but the mirrors only moved horizontally, and the power of lateral movement of the eye was alone recovered; on obtaining a stereoscope in which the mirrors moved vertically, the other muscles came into play, and in the short space of a month, the

patient practising half an hour daily, very little failure of motor power was observed. Vignes suggests that the action of the stereoscope was analogous to that of massage and compulsory movement found to be so helpful in other cases of loss of muscle power.

### 13. Wounds of cornea.

In cases of wounds of the cornea de Wecker (*Annales d'Oculistique*, t. cxii., Nov., 1894) recommends an extension of the plan of making wounds of the cornea subconjunctival, proposed by Snellen at the last International Congress. The difficulties attendant upon any endeavour to cover a large wound of the cornea by one or two flaps of conjunctiva are sufficiently obvious; for they must be of large size, and, when made to cover the wound, the stitches which keep them in position rapidly cut their way out before the corneal wound has united. The plan adopted by de Wecker consists in separating the conjunctiva from the sclera for a considerable distance, commencing the circular incision at the periphery of the cornea, and then threading the free border with a single long suture, which enables the operator to gather it up like a form of purse and cover the entire surface of the cornea. Careful antiseptic precautions are taken, a pad and bandage are applied, and the parts left at rest for a week or ten days. No instance of adhesion of the conjunctiva to the cornea was observed by de Wecker except just at the margin of the wound. The proceeding seems to be rather a doubtful one, and to require some prescience on the part of the surgeon. It will probably answer well in cases of clean-cut wounds with a sharp instrument or a piece of glass—which, however, do well when closure of the lids is alone maintained—but it has the disadvantage of withdrawing the injured part from inspection and of supplying a sac between the cornea and conjunctiva, in which pus and inflammatory products may accumulate. Very severe wounds, both of cornea and sclerotic, heal up well when the edges of the wound are merely kept in apposition, with or without sutures; a collapsed eye quickly becoming plump under the closed lids. It is certainly not adapted for punctured wounds.

The difficulty of removing the tattooing of the skin which results from the explosion of gunpowder is well known. Gunpowder consists of minute particles of charcoal and sulphur embedded in a mass of potassium nitrate. When driven into the skin, the salt is promptly dissolved, the sulphur also disappears, and the minute particles of carbon become diffused in the adjoining tissues, and are in a small degree taken up by

the lymphatics. From their opacity the position of the mist or cloud of small carbon particles is very clearly visible. In part, they are eliminated by the shedding of the epithelium, but the major part often remains and constitutes a stain. The removal of this is attempted by blisters and by excision, but Edward Jackson (*Ophthalmic Review*, April, 1895, p. 105) has lately resorted with advantage to the use of the galvano-cautery as the means by which the destruction of the stain, with most accurate limitation to the part affected, could be accomplished. He uses a small cautery tip, kept at white heat, which is brought into contact with the skin at the point involved. The resulting scars, he says, even when thickly placed, cause very slight disfigurement, and even this decreases with time.

symptoms disappear in one or two days. The *early* operation is recommended in all cases of recent uncomplicated middle-ear inflammation, but is contra-indicated in advanced tuberculosis and marked diabetes. It acts as an antiphlogistic, relieves pain, and either aborts the inflammation, or makes it assume a much milder course than would have been the case without its adoption.

### **8. Intra-tympanic massage and vapours in chronic aural catarrh.**

Würdemann (*Journ. of Amer. Med. Soc.*, Oct., 1894). Vibratory massage is applied through the catheter and Eustachian tube by means of a compressed air apparatus, the current of air being interrupted about every second by pressing the tubes leading to the catheter between the finger and the thumb. Würdemann thinks that in this way the lining membrane of the Eustachian tube, drum-head, and ossicles, is gently but effectually massaged, and its nutrition increased; also that adhesions are broken up and the joints loosened. The air is used at a pressure of from 15 to 25 lbs., and medicated with camphor-iodine, or menthol and thymol combined with camphor. The massage is applied daily, from five to ten minutes for each ear, then every other day, till twelve to twenty sittings have been gone through.

### **9. The "rational" treatment of acute otitis media.**

Gradenigo (*Medical Week*, Feb. 1, 1895) applies this term to a method which he adopts, because while based on modern asepsis, it excludes as far as practicable all such manœuvres as the insufflation of drugs, cleansing of the ear with cotton-wool swabs, air douches, injections into the Eustachian tube, etc., such procedures in his opinion irritating the diseased ear and favouring the dissemination of infective organisms. In the very earliest stage, when the pain in the ear has existed only a few hours, Gradenigo endeavours to "abort" the affection by a method differing from that just described—namely, by simple medical treatment, confinement to bed, dieting, etc. He instils the following drops, slightly warmed, into the meatus:—

R. Carbolic acid,  $\frac{3}{4}$ -1 gramme  
 Chloride of sodium, 4 grammes  
 Boiled distilled water, 50 grammes  
 Sig. For external use.

*It is claimed that the above is much more effective as an analgesic than the 10 per cent. carbolic glycerine usually employed.*



The sodium chloride is added to prevent maceration of the epidermis of the meatus. Irrigation of the nasal cavities is cautiously employed in certain cases, and this treatment when employed early enough is found to be frequently sufficient to abort an acute attack ; but if it fails to do so, and the signs of pus in the tympanum make their appearance, paracentesis is had recourse to without delay. This operation is performed antiseptically, and whether pus is evacuated or not, politzerisation, the instillation of lotions into the meatus, and all procedures designed to hasten the elimination of the exudations, are carefully avoided. The paracentesis is repeated by an incision crossing the first at its lower end, if the latter is insufficient to prevent accumulation of pus in the tympanum. Drainage is effected by introducing into the meatus a fine pledget of iodoform gauze to a depth short of touching the membrane. Injections of solution of hyd. perchlor.  $\frac{1}{10000}$  are had recourse only to when the discharge is very abundant. The external end of the pledget is covered with a few layers of iodoform gauze ; but several of these must be employed when the flow is considerable. This dressing is renewed as often as necessary, and reduced in amount as the case proceeds till only a little cotton plug is worn. In this way, rapid recovery is obtained in the large majority of cases. Persistence of *pain* is met by leeching the mastoid ; discharge, by bathing the ear for fifteen or twenty minutes daily with a tepid  $\frac{1}{10000}$  hyd. perchlor. solution before dressing, but only when the perforation is known to be sufficiently ample.

**10. The treatment of purulent inflammation of the middle ear in which there is a small perforation at the point of a mammilliform projection on the drum.**

Bing (Vienna Congress, 1894, in *Journ. of Lar.*) treats these cases, which run a complicated, or at least protracted, course, by applying a drop of liq. ferri perchlor. on the tip of a probe to the seat of the perforation ; a rapid and favourable recovery follows ; the medication causes no particular reaction, but has a powerful astringent effect. The otorrhœa ceases in a few days, the apertures quickly cicatrise, and under antiphlogistic and absorbent treatment, perfect restoration takes place.

**11. Irrigation of the tympanic cavity through the Eustachian tube.**

Gompertz (Vienna Congress, 1894, Otol. Sect., *Journ. of Lar.*) stated that although very brilliant results were often obtained by irrigation of the tympanic cavity through the tube

in acute and chronic suppurations, the result could not be counted upon; that under certain circumstances it might be positively dangerous, and that on that account he advised that it should be quite given up. He had seen cases in which this treatment, employed during the acute stage, had caused otitis of the mastoid, which only yielded when the method was discontinued. He inferred from experiments of his own, that where resistance to the passage of the fluid existed, infective organisms might easily be driven deeply into the osseous parts that would otherwise have remained free. Whereas, in defect of the tegmen tympani, or of the tegmen antri, the fluid might penetrate directly under the dura mater. The discussion following Gompertz's remarks elicited from the highest authorities that, though not to be advised in the acute stages of suppurative otitis media, these irrigations were comparatively without risk in chronic cases, and as a number of obstinate cases could be cured by no other means, the complete abandonment of this method would be a serious loss to therapeutics.

### **12. The dry treatment of otitis media suppurativa.**

Nichols (*New York Med. Journ.*, February, 1895) cautions against limiting this method of treatment to the insufflation of boric acid, resulting mainly in shutting the secretions and forming a hard plug. He has arranged an ear-kit for the treatment of such cases, a suitable syringe and a bottle of peroxide of hydrogen solution being essentials. The dry treatment he advocates consists in removing the secretions as soon as they are formed, the ears being inspected twice a week until the bad symptoms are relieved. A small perforation should be enlarged and free drainage established. Curetting away of any dead tissue, followed by the application of a caustic of moderate strength, in minute quantity, should be carried out, but astringent applications, such as alumol and absolute alcohol, are useful. He objects to eucrophen and iodoform. Attention must be directed to the nose and nasopharynx at the same time.

### **13. Delstanche's extraction of the malleus.**

Beco, of Liège (*Journ of Lar., Rhin. and Otol.*, December, 1894), draws conclusions as to this method to the following effect, from facts observed after performing the operation himself: (1) The application of Delstanche's extractor is easily made. (2) The section of the tensor tympani is executed without difficulty: it is only necessary to make several antero-posterior sawing movements, which serve in addition to isolate the ossicles. (3) The see-saw movement which is given to the malleus is effected without risk of fracture. (4) The ossicle is drawn out by the annular extractor

itself, if one is careful to keep the instrument close against the superior wall of the meatus. (5) While safe, easy, and rapid, the operation causes no unnecessary ulceration, and is not followed by troublesome consequences. (6) The incisions necessary for liberating the handle of the malleus should be made with as little delay as possible, so as not to obscure the field of view by bleeding; but it is generally necessary to mop up the blood at this stage, because a clear field is required in order to engage the manubrium in the ring; the rest of the operation can be performed in the dark.

#### **14. Tuberculous disease of the middle ear.**

**Milligan** (Meeting of Brit. Med. Assoc., 1895) instituted a series of experiments to show that primary tuberculosis of the mucous membrane of the tympanum was more frequent than hitherto believed. Painless perforation of the membrana tympani, especially when complicated with facial paralysis, was usually an indication of tuberculous disease. He had operated upon ten children suffering from mastoid suppuration, and inoculated guinea-pigs with pus and scrapings from the diseased bone. In eight of the ten cases tuberculous infection followed, and upon dissection, the pelvic and mesenteric glands were enlarged and infiltrated. The importance of an early recognition of tubercle in these cases, followed by operative interference, and the complete eradication of diseased tissue, was the inference to be drawn from these experiments.

#### **15. The treatment of attic disease.**

**Hill** (*Clin. Journ.*, April 1, 1895) concludes a lecture on this disease with a summary as to its treatment. Syringing out the attic once or twice daily with solutions of hydrogen peroxide, biniodide of mercury, or other antiseptic, by means of the intra-tympanic syringe, should be tried before having recourse to more radical measures. This method failing to relieve, the question has to be considered of thoroughly curetting the attic with a scoop, and applying chromic acid where granulations are present, the patient being anæsthetised and afterwards confined to bed. The dangers of this operation are:—Injury and dislocation of the ossicles, with consequent deterioration of hearing power; inflammatory mischief in the temporal bone, necessitating mastoid operation; the stirring up into activity of septic organisms; and, lastly, facial paralysis. Should the symptoms continue after skilful curetting, it is probable that one or other, or all, of three conditions obtains. (1) Either cholesteatomata are present; or (2) the ossicles are diseased; or (3) adventitious bands attached to the latter prevent efficient drainage from the internal attic and antrum. In these cases the obstructing malleus, and if necessary the incus, must be

removed, to enable the diseased area to be exposed thoroughly and treated. If this fails, the next thing to be thought of is Stacke's operation, as, if ossiculectomy fails to relieve, it is probable that the case is complicated by granulations or other morbid lesions in the antrum or mastoid cells, which must be reached and eliminated by one of the recognised operations for that condition.

**16. The treatment of cholesteatoma of the petrous bone with a permanent retro-auricular opening.**

Reinhardt's method of operation, as detailed by him at the International Congress at Rome, was briefly alluded to in the "Year-Book," 1895. He now gives the result of his further experience, as expressed at the Otological Congress at Bonn, 1895 (*Archiv. of Otol.*, vol. xxiv., No. 2). Amongst eighty-four antrectomies performed by the author during the last five and a half years, cholesteatoma was found twenty-five times. Of these, thirteen are cured, and in nine of them the cure has lasted for from one to four years; the duration of observation of the remaining four cured cases extends over a period of from two to ten months. Three have died—viz. two from cerebral abscess, and one from sinus-phlebitis and pyæmia, the operation having been performed too late. Suppuration has returned in four cases, which have been treated by securing cicatrization of the opening behind the ear and using irrigations through the opening, according to the former method. Five cases are still under treatment, two of which can soon be discharged as cured. As regards the urgency of the symptoms for which the operation was undertaken, the author states that amongst the five cured cases exhibited at the Bonn Congress the following grave conditions existed:—caries, necrosis of the sinus walls, tuberculosis, sinus thrombosis, pachymeningitis, facial paralysis, vertigo, headaches and vomiting. Regarding the operation, Reinhardt states that he has always endeavoured to produce a permanent opening towards the external meatus, as well as in the lateral wall. The result is a free and unimpeded access of air to the cavity, and permanent epidermisation, the entire space being finally lined with membranes. Suppurative disintegration of these membranes has always returned sooner or later when this cavity has remained open only towards the external meatus; but this has only happened once when a permanent retro-auricular opening has been established. An advantage for the future of the patient consists in the permanent closure of the tympanic ostium of the Eustachian tube; for by the discharge of secretions from the tube *into the tympanum*, mucus readily gathers at the bottom, with *obvious consequences*. Cosmetic considerations against the

patency of the retro-auricular opening are of little moment when compared with the severity of the affection and the seriousness of an eventual relapse. Even ladies get used to the disfigurement, which is covered by arrangement of the hair, and into which a small piece of cotton is loosely placed. A pad is to be recommended for particularly large openings, which cannot be covered by the hair.

### **17. Mastoid operations for intractable otorrhœa.**

**Barr** (Brit. Med. Assoc. Meeting, 1895), in describing a series of eight cases operated upon by himself, spoke of the excellent results he had obtained from the use of the globular dental burr, followed by the gouge. The clean surface left by the burr was of great advantage in estimating the depth and direction of the opening. It should be hard and sharp, and should be removed frequently to get rid of the *débris*. The best burrs were made by White, of Philadelphia; those made in England rode over eburnated bone instead of cutting it. The operation and results obtained were by no means perfect yet. Some of the cases healed extremely slowly; and various changes from lotions to the dry method, and *vice versa*, were necessary to bring about complete cessation of the discharge. The length of time occupied was from two to eighteen months.

### **18. Facial paralysis in acute median otitis.**

**Lake** (*Journ. of Lar., Rhin. and Otology*, May, 1895) summarises our knowledge of this complication, and cites cases to prove the necessity of the early adoption of energetic surgical measures (such as Stacke's or Schwartz's operations), especially in adults, if permanent palsy is to be avoided.

### **19. Cerebral complications in relation to disease of the middle ear.**

**Macewen** (Brit. Med. Assoc. Meeting in London, 1895. Rep. in *Lancet*, Aug. 10, 1895) remarked that the tuberculous form of otitis media had not received the attention it deserved. It spread slowly and with little pain, and sometimes reached an advanced stage without perforation. The deposits formed by the disease constituted excellent culture media for pyogenic bacteria, which by such means found their way into the softened bones. This statement was particularly applicable to the cavity of the middle ear, where food, warmth, and darkness were supplied for their growth and multiplication. The danger of conveying disease from ear to ear by means of carelessly disinfected probes was very great. Macewen brought forward the following propositions:—(1) That the spreading of infection from the middle ear to the brain and its membranes is preventible. (2) That when such infective

disease is established, the surgeon must insure its eradication. That when located in the brain the focus must be removed, as well as the paths by which disease has travelled and the part that has secondarily become infected.

## **20. Turbinotomy in deafness and tinnitus.**

**Carmalt Jones** (Brit. Med. Assoc. Meeting, 1895. Rep. in *Lancet* Aug. 24). Removal of hypertrophied inferior turbinals and moriform growths should be practised in cases of deafness and tinnitus where the auditory nerve was in a healthy condition. The naso-pharynx was the cause of much secondary ear trouble. Notes were read of twelve cases of deafness or tinnitus in which turbinotomy had been performed with the spoke-shave invented by the author. Eleven of these were cases of deafness and tinnitus combined. Relief to both conditions was afforded in eight cases, slight relief to deafness only in one. In two there was no relief to either symptom. In one case of deafness without tinnitus, the hearing was improved.

## **21. Pilocarpin injections in diseases of the middle ear and labyrinth.**

**Schirmunsky** (Epit. *Brit. Med. Journ.*, June 22, 1895) summarises the results he has obtained by hypodermic injections of pilocarpin in affections of the middle ear and labyrinth, as follows:—(1) The injections act only in the early stage of labyrinthine affections, whatever be their origin—syphilitic, traumatic, or secondary, and the earlier in the process the treatment is begun the more effectual it is. (2) In inveterate disorders of the labyrinth, and in dry catarrh of the middle ear, pilocarpin, whether injected subcutaneously or directly into the tympanic cavity, has no effect.

## **22. The treatment of nerve deafness.**

**Dundas Grant**, in opening the discussion on this subject at the meeting of the Brit. Med. Assoc. in London, classified the forms of nerve deafness as follows:—I. Labyrinthine, including (1) affections due to disease of the labyrinth alone, namely, circulatory disturbances, infectious diseases, rheumatism, traumatism, "occupation" (*i.e.* the action of noise), senile changes, etc. etc. (2) Labyrinthine disease secondary to middle-ear inflammations—chronic catarrhal, including typical "Ménière's disease," suppurative, etc. II. Diseases of the auditory nerve and cerebral auditory centres—such as neuro-labyrinthitis following suppurative meningitis, cerebral syphilis, neoplasms, hysteria, reflexes, etc. As regarded treatment in the first or labyrinthine division, depletion was first to be thought of in congestive disturbances with a full *habit*. In addition to specific remedies, syphilitic cases derived

benefit from profuse sweating, obtained by Turkish baths and pilocarpin injections; the latter, to be successful, should always be tried in the first instance, before the effusion (whether mucous, serous, or purulent) had become organised. All reported cures in syphilitic cases were cases in which the remedy had been thus early employed. The deafness of hereditary syphilis was always rebellious, but pilocarpin should be tried in the labyrinthitis following mumps and infectious diseases. In "occupation" deafness it should be avoided, and galvanism substituted. In labyrinthine disturbance from sudden noise, Delstanche's *rarefacteur* had been known to cause immediate improvement, by restoring to position the indriven membrane and stapes. Functional rest for ears subjected to loud noises should be obtained by plugging the meatus with cotton-wool. The galvanic current was serviceable in functional cases. The positive pole was to be applied at the nape of the neck, and the negative to the tragus or mastoid (reversed for tinnitus); four to eight milliampères might be employed with discretion. Strychnine was invaluable, especially for the overworked and underfed. Quinine counteracted the giddiness and vertigo rather than the deafness. Colchicum and iodide of potassium were indicated in gouty subjects. "Suggestion" was advised in hysterical cases, "acoustic exercises" in nerve-deafness in general, and instruction in "lip-reading" when treatment was unavailing.

### 23. Treatment of tinnitus aurium.

Miot and Herck (Proc. French Soc. of Otol. and Laryngol. Rep. in *Med. Week*, May 20, 1895) review the various causes of tinnitus, and summarise its treatment as follows:—

(1) From affections of the external ear, which may be due (a) to *hyperæmia* of the soft tissues of the meatus and tympanic membrane, or (b) to reflex action on the muscles of the middle ear and on the branches of the auditory nerve; (c) to obliteration or hyperæmia of the auditory meatus; (d) to more or less severe inflammation of the tissues, and (e) to reflex action on the internal ear. Foreign bodies and various forms of circumscribed and diffuse otitis may also be a direct cause of this form of tinnitus. Extraction of the foreign body, instillation of antiseptics, and injections of pure water or an aqueous boric solution, constitute the treatment to be employed in such cases, associated with a general treatment adapted to the circumstances of each.

(2) The causes of tinnitus attributable to the middle ear are dependent (a) upon various lesions of the Eustachian tube, and tympanic membrane or cavity—namely, inflammatory conditions of the mucous membrane, sometimes determining hyperæmia of



the labyrinth, best treated by cooling applications and bleeding; (b) upon a subacute or chronic mucous state, with or without obstruction of the Eustachian tube, to be met by restoring the patency of the latter, absorption of the products of secretion by means of insufflation into the middle ear, and, if need be, by incision of the membrane; (c) sclerosis, otorrhœa, synechiæ, and exaggerated tension; here the treatment will be suggested by the nature of each case.

(3) With regard to the internal ear, the pathological conditions causing tinnitus may be divided into five groups:—(i.) anæmia; (ii.) hyperæmia; (iii.) extravasation; (iv.) inflammation; (v.) chronic lesions of the labyrinth. Anæmia, when determined by general debility, readily yields to tonics and hygienic measures; but when the result of a lesion of the basilar or auditory arteries, the treatment is far more difficult. In hyperæmia, sulphate of quinine and salicylate of sodium may be given. Extravasations should be treated by administration of sulphate of quinine, and the probable cause of the effusion sought (such as a cardiac affection). In inflammatory cases, antiphlogistics are to be resorted to first, then pilocarpin injections, iodide of potassium, and galvanisation of the sympathetic, these measures being also of advantage in chronic affections of the labyrinth.

(4) Tinnitus due to a general affection of the nervous system or a mental disease should be treated by soothing the erethism and resorting to cutaneous derivative measures.

(5) In reflex tinnitus, due to disease of the trigeminus or facial nerve, stomach, uterus, etc., the organ or nerve at fault must be treated on the usual principles.

#### **24. Hysterical deafness.**

**Hector Mackenzie** (*Brit. Med. Journ.*, March 16, 1895) records a case in which hysterical symptoms largely predominated, where hearing was quickly restored on re-educating the sense of hearing by the vocal gymnastic method. **Ransom** (*Brit. Med. Journ.*, March 2, 1895) records a case of sudden functional deafness with concomitant aphonia in which both symptoms disappeared on applying the faradic current to the larynx. **Dalby** (*Brit. Med. Journ.*, March 16, 1895) gives instances of recovery from so-called hysterical deafness without any treatment whatever.

#### **25. Acoustic gymnastics: The system of vocal training of the auditory nerve that is advocated by Urbantschitsch.**

**Goldstein** (*Archiv. of Otol.*, vol. xxiv., No. 1). During the past year **Urbantschitsch** has instituted a daily class in "aural gymnastics" for the instruction of the deaf, and has obtained

results of a most gratifying character. Children who in previous examinations had been declared hopelessly deaf, and only fit for deaf-mute asylums, have, since the adoption of the method, recovered not only their capacity of hearing *vowels*, but in the course of a year's practice have been able to hear and repeat *whole sentences*. Many of these cases at the first investigation, gave indications of absolute deafness, demonstrable by tuning-forks of different pitch, through air- and bone-conduction, and by most intense sounds applied to the ears; even the use of ear-trumpets, tubes, and similar devices developing no sound-perception. The conclusion is inevitable, that individuals apparently completely deaf, but being made to develop not only perception but also differentiation of sound, were not really deaf, but lacked the power of properly interpreting acoustic impressions. The system of training advocated produces:—(1) a *differentiation and proper perception* of aural impressions; (2) a *stimulation in sound intensity*, with a gradually increasing acuteness in aural perception. The manner of conducting this new system is as follows:—Suppose a case of complete deafness or deaf-mutism: a vowel is sounded in a loud voice, close to the patient's ear; the patient receives either *no impression*, or indicates a *very indefinite sound perception*. This sound perception, if present, may be the same for all vowels—thus, *a*, *e*, *i*, *o*, *u* would all be heard as *a* or *e*, as the case may be. The exercise is begun by indicating to the patient the vowels to be used—as, for example, *a* (as in *father*), *e* (as in *eel*). After several minutes' use of these two vowels, called into the ear in a steady, loud voice, the patient will often arrive at a differentiation of the sounds; in other cases a number of sittings are required. The other vowels should be brought into use gradually, but as expeditiously as the case will allow of. The plainest, simplest sounds of the vowels should be used—viz. *a* (as in *father*), *a* (as in *late*), *e* (as in *eel*), *o* (as in *rope*), *u* (as in *flute*). Following the vowels, the consonants should be combined in monosyllables—as *lo*, *may*, *do*, *ba*, *he*, etc. Consonants heard with difficulty and easily confusable—as *b* and *p*, *t* and *d*, *g* and *k*, etc.—should receive extra attention and be diligently practised. Instead of mere sounds, words of single syllables may be used. Should the patient persist in repeating a wrongly heard sound or word, it is suggested to give him first the *right* and then the *wrong* sound, until the differentiation becomes apparent to him. It is recommended that, in this practice, *words without meaning* should also be used, to determine whether or not the patient really hears the words used and is not exercising the power of combination of familiar sounds. As the patient improves,

*whole sentences* should follow the use of vowels, consonants, and words, and the *hearing distance should be gradually increased*. By degrees the speaker's lip-movements should no longer be observed by the patient, in order that the results gained may be those of the aural gymnastics *exclusively*, without the aid of sight. Regarding the length of time of each sitting, it is found that a few minutes often suffices to tire these patients' hearing power completely, too prolonged an exercise sometimes producing a temporary condition allied to asthenopia. Commencing with from ten to fifteen minutes two or three times daily, the length of time should scarcely ever ultimately be prolonged above one hour at a sitting. The *pitch* and *intensity* of voice used, must be modified as each case demands. Beneficial results from the use of this system are equally distributed, either in cases of acquired or congenital deafness. Age seems to offer no obstacle to success. It is to be hoped that this method of instruction of deaf-mutes, which holds out such great promise in the future, will receive an extensive trial in England.

## NEW INSTRUMENTS.

### **26. A new oto-rhinoscope.**

**Jacquemart** (*Revue de Lar., d'Otol. et Rhinol.*, Aug., 1895). A bivalve speculum is held in position with the left hand, whilst with the right is held a small cylinder containing an electric light supplied from an accumulator, and having at its distal extremity a lens which concentrates the rays of light precisely upon the speculum. The latter being separated from the lamp does not get hot; at the same time no light is lost, nor does it dazzle the eyes of the operator.

### **27. A new inflator.**

**Park** (*Archiv. of Ophthal. and Otol.*, Jan., 1895) describes an inflator for the middle ear which he claims to be more convenient than the Politzer bag. It can only be used in conjunction with an air tank. A conical nose-piece is adapted at one extremity of the tube for application to the nostril, whilst the other end is connected by means of a metal tip to any automatic "cut off" arrangement. The apparatus is provided with a handle to be held by the operator. It is claimed that with it one can inflate an ear that would resist all attempts with a Politzer bag, and that it can be applied painlessly, because pressure on the opposite *alanasi* is unnecessary. An arrangement for introducing medicated *air is easily attached*.

**28. Self-retaining aural polypus-forceps.**

**Wyatt Wingrave** (*Lancet*, Dec. 8, 1894) has designed a polypus-forceps in which self-retention is secured by means of a cross-spring action. The strength of the instrument exceeds that of any other of the kind depending upon this principle.

**29. Hermetic covering for Siegle's speculum.**

**Courtade** (*Proc. of Paris Soc. of Laryngol.*, 1894). This is an indiarubber covering for the meatal portion of the speculum, which can be inflated by a small air-ball, so that the space between the speculum and the wall of the meatus is occupied by a form of air-sac which assures hermetic closure, and not only perfect adaptation to any meatus, but total freedom from pain.

**30. A new auscultation-tube** has been invented by **Cheatle** (*Brit. Med. Journ.*, Sept. 22, 1894), which insures adaptation of the nozzle of the tube at either end to the meatus of both patient and surgeon.

# DISEASES OF THE THROAT AND NOSE.

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## I.—TONSILS.

### **1. Point of selection for opening tonsillar abscess.**

**Brannan** (*New York Med. Record*) says the incision is to be made through the soft palate, unless the pus points elsewhere, and where the tension is great, even without the formation of pus. The point of selection is a little above and external to the upper border of the tonsil, apparently in the anterior pillar, but really in the epitonsillar space. Incision by a fine needle or knife and subsequent dilatation of the abscess cavity by forceps, introduced, closed, and opened, is the preferable method.

### **2. Hæmorrhage following puncture of an enlarged tonsil with the galvano-cautery.**

**Berens and Gleitsmann** (*New York Academy of Medicine*, Oct., 1894) relate cases in which puncture of large tonsils with the galvano-cautery resulted in hæmatoma of the posterior pillar and severe hæmorrhage. The bleeding in one case lasted several hours, and was most difficult to stop.

### **3. The treatment of so-called follicular angina.**

**Sendziak** (*Journ. of Laryngol., Rhinol. and Otol.*, May, 1895) bases his treatment on the removal of general symptoms (fever, weakness, etc.), which he obtains by giving oleum ricini, anti-pyrin, quinine, or salol internally, wine, and nutritive diet. As to the local treatment, he limits himself to garglings with salol (of 5 per cent. alcoholic solution, a teaspoonful to a glass of lukewarm water—on mixing, it forms a milky fluid) or menthol; very seldom corrosive sublimate or creolin (both these remedies are very disagreeable to patients). In slighter cases simply boric acid was prescribed.

*In cases in which the pharyngeal tonsil is simultaneously affected, he applies insufflations of aristol to the naso-pharyngeal*

cavity, as well as nasal douches (Schmidt's method), with boric acid, etc.

## II.—PHARYNX.

### 4. Pyoktanin in sarcoma of the tonsil.

Moritz (*Brit. Med. Journ.*, Nov. 24, 1894) treated a woman, forty-nine years of age, who had a growth on the right tonsil, another the size of a plum in the roof of the mouth, and a third one in the left parotid region. In April, 1894, he began to inject, three times weekly, 5 milligrammes of a saturated solution of yellow pyoktanin (auramin) into each of the growths. The tumour of the hard palate has disappeared, and the tonsillar growth is half as large as it was.

### 5. Formates in the treatment of ulceration of the pharynx and larynx.

Shurley (Pan-American Medical Congress, Sept., 1894; *Journ. of Laryngol., Rhinol. and Otol.*, Nov., 1894) says that speedy cicatrization of simple ulcers and cicatrization or arrest of progress—more or less permanent—in specific, tuberculous, or epitheliomatous ulceration, follows the local application of equal parts of starch and formate of soda by insufflation, or of 5 to 10 per cent. solutions of formate of soda or ammonia by spray. The applications are practically painless.

### 6. An improved mouth gag.

Bark (*Journ. of Laryngol., Rhinol. and Otol.*, Feb., 1895) describes a gag which he has used for some years with the utmost satisfaction. It consists of a vertical and two horizontal bars; one of the horizontal bars is fixed to one end of the vertical bar, while the other is perforated by the vertical bar, and moves freely up and down on it. They are kept apart by a strong spiral spring, which surrounds the vertical bar; at the end of each horizontal bar is suspended a tooth plate, which is covered by soft dental rubber, and has free lateral movement.

The chief feature of this gag is the position of the tooth plates. They are attached by one extremity to the horizontal bars and curve well towards one another; the result of this is, that when the mouth is propped open, the horizontal bars are well above and below the incisor teeth, and so leave the mouth and throat perfectly free for manipulation.

It is extremely useful in the removal of enlarged tonsils and adenoids, under chloroform, ether, nitrous oxide, or even in the absence of an anæsthetic. Its advantages are:—(1) It gives a full and uninterrupted view of the mouth and throat; (2) it is

easily placed in position and removed; (3) it is automatic, and therefore needs no assistant to hold it in position; (4) the one instrument is adapted for any sized mouth, and for children or adults. The gag is made by Messrs. Mayer and Meltzer, 71, Great Portland Street, London, W.

### III.—LARYNX.

#### **7. An astringent tablet for acute and sub-acute laryngitis and pharyngitis.**

Phillips (*New York Academy of Medicine*, April, 1895) finds this useful where secretion is excessive. It is composed of a quarter of a minim of eucalyptol, oil of cubebs, ammoniated tincture of guaiac, and fluid extract of thuja, combined with a small quantity of tannic acid, menthol, or oil of gaultheria.

#### **8. The treatment of fatigue of the voice.**

Castex (meeting of the French Society of Laryngology and Otology, *Journ. of Laryngol., Rhinol. and Otol.*, Jan., 1895) says that this must be preventive or curative. To prevent abuse, a voice ought to be managed from an early age—say, from five or six years old. During “breaking” there ought to be a rest; this period passed, it recovers all learned from the gymnastics of infancy. When in full use there should be, on an average, an hour of work every day, and this should be divided into four equal parts, with intervals of rest, and with annual vacations of complete rest. It is important to remember that an average compass is only twelve notes, to which training can add two high and two low notes; to exceed this limit is dangerous. Curative treatment consists in rest, electricity, massage, and hydrotherapeutics.

#### **9. External examination of the larynx and trachea.**

Gerhardt (*Journ. of Laryngol., Rhinol. and Otol.*, April, 1895) says we can obtain important information without making use of the laryngoscope. During dyspnoea, if the larynx move only slightly, the cause is to be sought in the trachea; if more extensively, the stenosis is in the larynx. In laryngeal croup the neck is bent backwards so that the bodies of the vertebræ may press the cartilages of the larynx flat; in stenosis of the trachea the chin approaches the breast. In tracheal stenosis there is expiratory stridor; in laryngeal stenosis, inspiratory stridor. The author does not look upon tracheal tugging as a characteristic symptom of aneurysm. In a case of aneurysm of the ascending aorta he observed distinct interruption of the tone during prolonged phonation. If a finger be placed on each side of the



larynx, between the thyroid and cricoid cartilage, the action of the crico-thyroid is felt. If the contraction be absent on one side, a paresis is present, and we can determine whether this is of central or peripheral origin by electrical examination. If the finger be pushed higher, towards the thyroid cartilage, the vibrations of the vocal cords are felt; in this way a paralysis of the recurrent can be diagnosed in many cases, and the presence of extensive ulcers and tumours established. The voice can sometimes be improved by pressing on the thyroid cartilage, especially by compression in hysterical paresis. If "ah" or "oh" can be produced by pressing on the thorax—passive voice production—then we have probably to deal with a double abductor paralysis. Abnormal movements of one vocal cord can also be felt with the finger placed behind the upper cornu of the thyroid. Gerhardt refers to a case of sarcoma of the leg, and of the right and left lung and pleura, in which there was giddiness on standing erect. With the laryngoscope, tremor-like adduction movements of the vocal cords were seen during expiration, which could also be felt externally. The *post-mortem* examination revealed a sarcoma metastasis in the frontal bone which pressed on the frontal convolutions.

[The bearing of these observations on treatment is so obvious as to warrant their insertion.—B. J. B.]

#### **10. Acids for the removal of fish bones, etc., from the larynx.**

Schliess (*Therap. Monatschrift*, No. 2, 1894) suggests that bony foreign bodies should be touched with a 2 per cent. solution of hydrochloric acid or acetic acid if they are in the larynx. If they are in the œsophagus or stomach, vinegar should be swallowed. They are thus decalcified.

#### **11. The surgical treatment of laryngeal tuberculosis.**

This formed the subject of a discussion at the meeting of the British Laryngological, Rhinological, and Otological Association, July 25 and 26, 1895 (*Journ. of Laryngol., Rhinol. and Otol.*, August, 1895). Krause's remarks may be thus summed up:—(1) *The choice of cases.*—He does not advise extreme carefulness. Ease can be given even in the most advanced or desperate cases, and neither high fever nor great debility need prevent our giving the patient this relief. He quotes a very bad case in which the excision of large pieces from the ary-epiglottic and pharyngo-epiglottic folds was followed by remarkable benefit, owing to swallowing becoming practically painless. (2) *The performance of the operation.*—The parts most diseased, the disease of which most

endangers nutrition or respiration, should be attacked first. Gradually the whole of the diseased structures can be cut away, not excepting the epiglottis or the arytenoid cartilages. Deep and thorough operation is necessary, and after it lactic acid well rubbed into the wounded surface is the best substance that can be used. Sulphoricinate of phenol, as introduced by Ruault, has a similar but slower effect than lactic acid. (3) *Relapses*.—When strength is well preserved and tendency to cicatrization is observed, we get lasting results as often as in the lungs. Krause has seen cases in which the larynx has remained well, although the disease in the lungs has continuously progressed. In fact, as a rule, after the introduction of the surgical treatment laryngeal relapses are rarer than pulmonary ones.

Heryng's remarks may be summarised as follows:—(1) Laryngeal phthisis may heal by itself without any local treatment. The ulcers on the vocal cords and the posterior wall of the larynx heal most frequently; very rarely those more serious cases, in which the infiltration and proliferation products are attended with deep ulceration, as also those cases in which the disease has spread to the cartilage and has led to deep disintegration. (2) The objects of the treatment are: First and most important, the relief of the dysphagia. Secondly, the relief of stenosis. Thirdly, the cure of aphonia. (3) *Surgical treatment is indicated*: (a) In tubercular tumours of the epiglottis. (b) In circumscribed chronic tumour-like infiltrations of the posterior wall of the larynx, which show little tendency to break down. (c) In chronic tumours resting on an inflammatory base, surrounded with proliferation products, which resist all other methods of treatment. (d) In partial disease of the larynx, when the epiglottis, ventricular bands, and lateral ligaments are affected. (4) *Surgical treatment is contra-indicated*: (a) In advanced phthisis of the lungs, with hectic and wasting. (b) In diffuse miliary tubercle of the larynx or, rather, of the larynx and pharynx. (c) In all cachectic conditions. (d) In severe stenosis of the larynx, caused by inflammatory swelling of the affected parts. In these cases tracheotomy must be performed as soon as possible. (e) In patients who exhibit fear, nervous excitability, and mistrust of the physician, and who are always changing their doctor, especially those whose condition promises little hope of recovery. (5) With the proper application of cocaine, the operation itself is not painful. Submucous injection of cocaine is hardly ever necessary. (6) Pyoktanin (1 to 2 per cent. solution) has proved a very good means of preventing inflammation in the parts operated on. It must be applied to

the surface of the wound twice a day. (7) Recurrence takes place frequently at the place operated on, sometimes at a little distance from it. It is explained not only by inaccessibility of certain parts of the larynx to our instruments, but also by imperfect performance of the operation. In most cases, however, the recurrence is due to the disease spreading to the lungs, and the insufficient power of resistance to the infection. (8) Nearly the whole of the upper part of the larynx is accessible to surgical treatment by suitable instruments. It should be a rule in surgical treatment to excise as much of the affected parts as possible in one sitting. The double curette has the advantage over the single curette in certain cases. (9) It must be explained to the patients and their friends, before the operation, that the dysphagia cannot be removed at once by surgical interference, that it is very often increased for a few days, and, further, that the operation does not effect a radical cure. It is also advisable to tell the patients that the radical removal of the accessible parts is very seldom successful in one sitting; that, in spite of a successful operation, the disease of the larynx may return, and that the physician can give no guarantee of ultimate restoration to health. (10) The conditions of success of the surgical treatment in general depend: (a) On the local character of the affection, its extent and its nature. (b) On the general state of the patient, his nutrition and his strength. (c) On the anatomical character of the affection of the lungs. (d) On the age of the patient, his constitution, his profession, his material circumstances, his temperament, and his character. (e) On the thoroughness of the operation itself and the skill of the operator, as well as on the localisation of the processes in situations where it is technically possible to perform a radical extirpation of the infected tissues. (f) On the careful after-treatment, and the capability of the patient to submit to a prolonged dietetic and climatic treatment.

**Gleitsmann** said the *indications* for curetting are: (1) Primary tuberculous disease, without lung complication. (2) Cases with concomitant lung disease, either incipient, or which has stopped short of softening, or hectic. (3) Especially circumscribed ulcerations and infiltrations. (4) Dense, hard swelling of the arytenoid region, ventricular bands, posterior laryngeal wall, tuberculous tumours, and affections of the epiglottis. (5) In advanced lung disease, with distressing dysphagia from arytenoid infiltration. *Contra-indications* are: (1) Advanced pulmonary disease and hectic. (2) Disseminated tuberculous disease of the larynx, leaving little or no area of healthy tissue. (3) Extensive infiltrations producing severe stenosis, where tracheotomy is indicated.

Absolute quiet after operation is necessary ; and, until cicatrisation is complete, daily applications of lactic acid, or pyoktanin (one or two per cent.) should be made. Cicatrisation occurs in from seven to twenty-eight days. Ulcerations if well defined do better than if shallow and diffuse. Dense infiltrations, which are generally localised, do better than cedematous conditions. The double curette was used in twelve cases, all with lung complication ; two operations were for infiltration of the posterior wall alone ; one for this, combined with affection of the ventricular band ; four arytenoidectomies ; three arytenoidectomies with excision of the ventricular band, and two of the latter alone. Arytenoidectomy had to be performed a second time on two patients, on account of recurring infiltration. One patient died from heart-failure, and another from advanced lung disease ; four were without recurrence of laryngeal disease, after an interval of from six to ten months ; one had an affection of the posterior laryngeal wall ; another of the ventricular band, and two of the arytenoid region.

#### IV.—NOSE AND NASO-PHARYNX.

##### **12. The treatment of atrophic rhinitis.**

**Tissier** (*Annales de Médecine*) believes that the cause of atrophic rhinitis is a necrotic osteitis of the ethmoidal cells or sphenoidal sinus. He advocates antiseptic douches, curetting, and the insufflation of iodol in order to destroy the saprogenetic bacteria that invade these cavities, and thus by setting up putrefaction lead to the degeneration of the epithelium and the glands.

##### **13. Electrolytic treatment of fibrous tumours of the naso-pharynx.**

**Kaarsberg** (*Hospitals Tidende*, No. 7, 1894) has used electrolysis in four cases of this disease, and completely eradicated it in one or two sittings. He uses a very high current, *e.g.* 140 to 340 milliampères, and introduces one needle, which is shaped like a Eustachian catheter, through the nose, while the other is plunged into the growth behind the palate. They are insulated by means of india-rubber tubing, and kept in the growth from seven to ten minutes.

##### **14. Electrolysis in deflections and thickenings of the nasal septum, and swelling of the nasal mucous membrane.**

**Bresgen** (*Monatschrift für Ohrenheilkunde*) considers that the scope of the treatment is limited to the following :—(1) Those cases

in which it is not possible to carry out more energetic treatment—for example, in delicate persons, or those who are suffering in other ways. (2) Cases in which radical treatment is refused. Electrolysis is of value in cartilaginous and bony outgrowths of the nasal septum, as also for swelling of the mucous membrane. Before all things it is necessary to carry out careful cocainisation, and care should be taken to avoid causing distress by introducing the current quite slowly. Double needles are preferable to single ones, yet Bresgen uses the single ones in such a way that the one, for example, may be introduced straight into the anterior surface of an outgrowth of the septum, the other one bent, at an angle, being introduced into the posterior surface; in that way a quicker and more thorough effect is produced. For the side-walls of the nose he uses a double needle, which at two to four millimetres from the point has a rectangular bend, so that these needles can also be driven perpendicularly into the tissue. During the action of the electrical current there quickly forms a quantity of froth at the negative pole, through which a considerable amount of electrical force is lost. In order to prevent this, it is necessary to blow away the froth into the back of the nose or to introduce the needles in a new place. The after-pains, which may occur after the use of electrolysis, are generally so slight that the patients are not prevented from carrying on their usual mode of life. The slight hæmorrhages which occasionally take place at the positive pole are best stopped by means of a 20 to 40 per cent. solution of chromic acid. Bresgen, on analysing his experience, finds that electrolysis is not, nor ever can be, a therapeutical measure which can be used by other than experienced specialists, because when carried out by unskilled hands it can only lead to disaster.

**Casselberry** (*Journ. of Laryngol., Rhinol. and Otol.*, Aug., 1895) finds that the current strength necessary for electrolysis of nasal spurs is from 15 to 40 milliamperes measured with the resistance of the spur in the circuit. To supply this current from 15 to 30 cells of a galvanic battery must be used with a corresponding electro-motor force of from 12 to 20 volts or more.

The bi-polar method was used exclusively, and needles of irido-platinum are to be preferred. Not being oxidisable, these needles can be used repeatedly. Steel, being oxidisable, must be changed for every operation, and will not penetrate bone, whilst irido-platinum will easily penetrate cartilage.

He reports ten cases, which are divisible into three types, according to the composition and location of the spur.

Type I., strictly cartilaginous spurs. This includes five cases

successfully treated. Much care is necessary to avoid perforation. One to three sittings are required. The pain is but slight, but an occasional disposition to faint is observed. A duration of six to eight minutes is sufficient.

Type II., mixed cartilaginous and bony spurs. This includes three cases in which the spur was reduced in size only, the amount of reduction being commensurate with the proportion of cartilage contained in the spur. The bony parts cannot be penetrated by the needles, and are but little affected by the electrolytic process.

Type III., bony spurs, includes two unsuccessful cases.

### **15. The treatment of suppuration of the antrum.**

**Wright** (Report of the New York Acad. of Med. Meeting in *Journ. of Laryngol., Rhinol. and Otol.*, Nov., 1894), in an obstinate case of antrum empyema which was not cured by a small opening through the canine fossa, enlarged this, so that the little finger could be introduced into the cavity. Soft, spongy tissue was found in the upper part of the antrum and removed, and the cavity packed with iodoform gauze.

This treatment he recommends where the operation of perforating through the alveolus is either not indicated because there is no defective tooth, or has been performed and has failed. **Dundas Grant** (*ibid.* Dec., 1894) recommends perforation of the antrum in antral empyema through the inferior meatus by means of Krause's trochar: (1) In all cases arising from intra-nasal causes. (2) In all cases where there is no absence of disease of teeth. (3) As an adjunct to the alveolar method of treatment when this gives unsatisfactory results, and before resorting to the operation by means of a large opening on the outer wall of the antrum.

The point of selection in the inferior meatus is about an inch and a quarter from the entrance to the nostril, and under cocaine the trochar is pushed through the thin wall of the antrum. Thorough irrigation and insufflation of eucrophen or iodoform powders can readily be carried out by the patient's ordinary medical attendant. **Bark** opens through the canine fossa, and thinks that the intra-nasal operation is apt to give rise to irritating discharges from the nose.

**Milligan** makes a large opening through the alveolus, and uses a special siphon-douche for irrigation.

**Bronner** (*Journ. of Laryngol., Rhinol. and Otol.*, May, 1895) adopts Mikulicz's treatment through the middle or inferior meatus for mild cases. If syringing with boric acid does not cure, he insufflates this and iodoform, and, later, substitutes aristol for

iodoform. He also uses the alveolar opening, and makes a large opening through the canine fossa only when it is necessary to scrape out polypi or much granulation tissue.

Greville Macdonald believes that the operation through the alveolar border and drainage with the smallest-sized tube will cure cases of not over six months' duration. In older cases he has found it necessary to make a larger opening and scrape away granulations.

Baber substantially agrees with this. Hill likes the radical operation of making a hole large enough to enable the operator to scrape away polypi and granulations, and compares the pathological condition to what we find in the nose and ear. He favours, in some cases (especially when the ostium maxillare is blocked by a hypertrophied granular condition of the uncinatè process), the combined openings through the canine fossa and the inferior meatus and scraping out of the antral cavity.

Walsham punctures through the alveolus if the tooth be gone or decayed, or through the canine fossa, and rarely makes a large opening.

Scanes Spicer chips away the bone down to the level of the floor of the antrum, and establishes a groove down the alveolus. The opening is made large enough to admit the finger, and so allow of digital exploration. The interior of the cavity is curetted, so as to remove all abnormal material. After this he makes one or more openings through the outer nasal wall, behind the opening of the nasal duct.

Semon prefers the alveolar opening, and instructs his patients to irrigate with an astringent solution, *e.g.* sulphate of zinc ten grains to the ounce, of which one teaspoonful to half a pint of warm water is used twice a day at first, and later, once daily. The patient sits in front of a mirror, and when the fluid returns from the nostril free from turbidity or flecks of pus he stops injecting. In the few cases where there were polypi or necrosed bone, and where he has resorted to a large opening through the canine fossa with scraping and packing with iodoform, gauze, etc., his results have not been very satisfactory.

The above is the outcome of a discussion on this very important matter at the Laryngological Society of London, March 13, 1895, and sums up the operative methods most in favour in England for the cure of antral empyema.

#### **16. Lupus of the nose treated by thyroid extract.**

Lake (*Journ. of Laryngol., Rhinol. and Otol.*, Feb., 1895) showed two cases to the Laryngological Society of London on October 10, 1895. One was a boy, eleven and half years of age,



who had suffered for fourteen months, and whose soft palate and posterior pillars were also affected. He had taken  $7\frac{1}{2}$  grains of thyroid extract daily for three months, and was very much improved. The second patient was a girl, sixteen years old, who had been affected for three years. She took  $17\frac{1}{2}$  grains daily for the same period of time, and was very much improved.

### **17. Treatment of deviated septum.**

Asch, at a meeting of the New York Academy of Medicine held November 28th, 1894 (*Journ. of Laryngol., Rhinol. and Otol.*, Feb., 1895), said that the two great difficulties met with in correcting deviations of the cartilaginous septum are (1) the resiliency of the cartilage, and (2) the tendency to perforation that follows most of the methods ordinarily used. In the following operation the first difficulty is overcome, and the second does not follow. The operation is easy to perform, it takes but a short time, and does not require tedious dissection of the mucous membrane. The instruments required are a pair of cutting forceps or scissors, with a dull concave blade on one side and a convex cutting blade on the other, an elevator or chisel to break up any adhesions that may exist between the septum and the inferior turbinated body, and a hard rubber tubular splint of proper size, perforated at the sides, in order to enable it to retain its position and prevent it from slipping out. The mode of operating is as follows:—The patient having been etherised, and the head drawn over the edge of the table, so as to prevent the blood from running into the larynx, and the nostrils having been sprayed with an antiseptic solution, the dull blade of the scissors is introduced into the obstructed nostril in such a direction as to permit a crucial incision to be made, the first cut being in a line parallel with the upper lip, and the second as nearly at right angles to it as the conformation of the nose will allow. These two cuts make four triangular segments. The forefinger is then introduced into the nostril on the side in which the septum projects, and the segments are bent back into the other nostril and fractured at their base. With an Adams or any similar forceps the whole of the septum is then broken up, the bleeding checked by spraying with cold Dobell's solution, and the tubular splint introduced into the previously obstructed nostril, where it is allowed to remain for forty-eight hours without removal, the nose being in the meantime sprayed several times a day with an antiseptic solution. After the wound has healed, the patient can be allowed to introduce and remove the splint, which should be worn for two or three months. *It causes no discomfort if the septum has been sufficiently broken up.*

**18. Methyl blue in the treatment of nasal epithelioma.**

Domoe (*Thèse de Paris*, 1895) destroys the ulcerated and vegetating parts with galvano-cautery and chromic acid, and dresses the wound with methyl blue powder. He thinks this drug has great antiseptic power, and reaches deeply into the tissues, modifying the neoplastic epithelial cells.

**19. Orthopædic treatment in crests of the septum and occluded nostril.**

Guye (*Monatschrift für Ohrenheilkunde*) introduces tubes, gradually increasing in diameter from 6 to 12 millimetres and 10 centimetres long, in a case where there was constant growth of the septum and occlusion of the nostril after three removals of the growth. The patient will wear the tube for one or two hours daily until adult life, and the nostril is thereby kept patent.

**20. New method for the administration of ethyl-bromide in rhino-otology.**

Texier (*Thèse de Paris*, 1895) uses a dose of 3 to 5 grammes for children from three to eight years old, and 5 to 10 grammes for children from eight to fifteen years of age. This puts an end to the perception of pain, and is sufficient for removal of adenoids, large tonsils, aural polypus, etc.

# TROPICAL DISEASES.

BY PATRICK MANSON, M.D.,

*Physician to the Seamen's Hospital.*

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## 1. Malaria.

The publication by the New Sydenham Society, in 1893, of a translation of Laveran's latest work on *Paludism*, and, in 1894, of Marchiafava and Bignami's monograph on *Malaria and the Parasites of Malarial Fever*, and, also, of Mannaberg's most excellent work on the same subject has done a great deal to familiarise English medical men with the more important recent advances in this department of tropical medicine. The issue, by the Johns Hopkins Press, of Thayer and Hewetson's *Malarial Fevers of Baltimore*, confirming, as that admirable work does, the leading facts and conclusions of the Continental writers referred to, and showing that the malaria of America and, presumably, therefore, the malaria of other regions, is the same thing as the malaria of Europe, will, also, have a powerful influence in extending our knowledge of this most important subject. Thayer and Hewetson's work contains an excellent summary of all the really important discoveries and hypotheses of Continental workers, which are stated with much clearness and impartiality. Lastly, Alphonse Labbe's paper, *Parasites endoglobulaires du Sang des Vertébrés*, in the *Archives de Biologie expérimentale et générale* (3rd ser., t. ii., 1894), treating blood corpuscle parasitism with a masterly hand, and, from the naturalist's standpoint, places the entire subject on a thoroughly scientific basis. By giving precision and direction on the lines of comparative pathology to the study this work will do much to forward the principal pathological problem of tropical countries.

Although advance in the pathology of malaria has been most marked in recent years, it cannot be said that there has been a corresponding advance in the therapeutics; in fact, a tendency is displayed by many to revert to the active calomel treatment of our predecessors of fifty years ago, combining this, however, with what has been proved to be the most important advance in the more recent therapeutics, namely, the liberal and early

use of quinine at all or any stage of the fever and in any condition of the patient. Hypodermic injections and enemata of quinine are more frequently used than formerly in pernicious fevers, the prejudice that at one time existed against the former having been in great measure overcome. Bacteriology has taught the practitioner that tetanus need no longer be apprehended provided that care be taken that the hypodermic needle, syringe, and injections are sterile and contain no tetanus bacilli.

In cases of pernicious comatose remittent, in which it is of the utmost importance to obtain a rapid, sure, and concentrated action of the drug on the malaria parasites, **Bacelli** recommends the intravenous injection of the following solution:—Hydrochlorate of quinine 1, sodium chlorate 0·075, water 10 parts. This injection he has employed in these desperate cases with much success. Probably a similar treatment would be found of service in hæmoglobinuric fever of malarial origin, a disease in which it is of the utmost importance to avert as quickly as possible the too often fatal plugging of the renal tubules by the hæmoglobin liberated by the action of the parasites on the blood-corpuscles.

**Sir William Roberts**, at the recent meeting of the British Medical Association in London (*Brit. Med. Journ.*, Aug. 17, 1895) recalled attention to a remedy for malarial fever which had fallen into disuse, but which might be revived with advantage as an efficient substitute for quinine in those cases in which the latter drug had failed, or in which, owing to some idiosyncrasy on the part of the patient, or for other reasons, it was inadmissible. Anarcotine—or as it is generally called, narcotine—is very plentiful in Bengal opium—more so than morphia. At present it is an unused and waste product in the manufacture of morphia; but at one time, during the quinine famine of some forty or fifty years ago, it came into prominent use in India, and acquired a considerable reputation as an antiperiodic. **Palmer**, speaking from an experience of about 1,000 cases of fever, states that with doses of from one to three grains in 70 per cent. of the cases experimented on the fever was arrested at the second paroxysm, that in 20 per cent. of the cases the arrest was equally sure but not so speedy, and that in 10 per cent. the drug seemed to exercise no curative influence whatever. He further found that there were cases of malarial fever in which, although quinine had failed, anarcotine was effective. **Garden** gives similar testimony to the value of this drug. In consequence of the fall in the price of quinine the use of anarcotine was gradually abandoned and its virtues forgotten; **Sir William Roberts** has

therefore done well to recall attention to this drug, for there are undoubtedly cases of malarial disease in which quinine fails, and there are not a few cases in which, acting more or less as a poison, it cannot be used or used in effective doses, and in which some substitute for it would be most useful.

Phenocoll hydrochloride is another drug the action of which in ague is somewhat favourably reported on by certain Italian physicians. The dose is at least ten grains three times daily, namely at five, three, and two hours before the expected paroxysm. It should be continued for some days after the fever has disappeared. It is said to succeed sometimes where quinine has failed, and it has the further advantage of not causing ringing of the ears and deafness, and, owing to its being less bitter than quinine, of being more easily administered to children. It may be given in powder or in solution (solubility 1 in 17) and in hypodermic injection, the drug in the latter case being first dissolved in alcohol and the necessary quantity of water added. In 274 cases of malaria, phenocoll failed in 70, was doubtfully successful in 34, and completely successful in 170.

## **2. Amœba coli and dysentery.**

Gasser (*Arch. de Méd. expér. et d'anat. path.*, No. 2, March, 1895) found amœba coli in forty-five out of 109 cases of acute dysentery, in thirteen out of thirty-four chronic cases, in five out of eight cases of chronic diarrhœa supervening on dysentery, and in the stools of one out of two liver-abscess cases, but not in the liver pus. He observed no relationship whatever between the number of amœbæ present and the severity of the disease; and as he failed to find these parasites in the tissues constituting the floor of dysenteric ulcers, and as he found them in 20 per cent. of healthy stools coming from persons who never had had dysentery, he concludes that the amœba has no pathogenic relationship to this disease whatever.

Celli and Fiocca (*Ist. Igien. dell'Univ. di Roma*), basing their conclusions on material supplied by sixty-three cases of typical dysentery in Italy and Egypt, come to the same conclusion.

Continental observers, therefore, have not as yet endorsed Councilman and Lafleur's amœbic dysentery as a specific and special form of disease. (*Johns Hopkins Hospital Rep.*, vol. ii., Nos. 7, 8, 9, 1891.)

# PUBLIC HEALTH AND HYGIENE.

BY B. ARTHUR WHITELEGGE, M.D.,

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METEOROLOGICALLY the year 1894-5 has been marked by some originality. Unusual mildness up to Christmas was followed by intense cold for several weeks, which produced its effect in a high death-rate, chiefly from respiratory diseases, and especially among those whose resistance had been lowered by old age. Another result of the severe cold was the lesson, which neither local authorities nor householders are likely to forget, as to the unwisdom of laying water-mains too near the surface. Earth is a bad conductor of heat, and a covering of soil which delays the freezing of water in the mains delays also the thawing if the frost has been strong enough and long enough to turn the water to ice. Mains should be laid at such a depth that the temperature will not fall to 32° Fahr. under ordinary climatic conditions, and in the early part of 1895 many districts learned to their cost that a foot and a half is not a sufficient depth for the purpose. After the cold but short winter came a mild spring and (except from mid-July to mid-August) a hot summer, with the usual accompaniment of high diarrhœal mortality, which in the first week of September added no less than 16·8 to the death-rate in Hull. Late in September there was a further season of high temperature, and in many parts a renewed prevalence of diarrhœa. In several districts diarrhœa has been added temporarily to the list of notifiable diseases, with the consent of the Local Government Board, and indeed at their suggestion. As usual, there have been sporadic cases of rapidly fatal diarrhœa in adults, returned as English Cholera, or Cholera Nostras, but none which have received bacteriological confirmation as true Cholera. The record of Asiatic Cholera has been satisfactorily blank as far as the British Isles are concerned, although false alarms have not been wanting.

Influenza showed signs of returning activity in the autumn of 1894, but disappeared when the cold weather set in, to return in

epidemic form in February and March. As usual, it had a marked effect upon the death-rate, which in London reached a maximum of 41·2 in the week ending March 9th. This was far exceeded in other towns, and Liverpool had the highest record of 54·4 in the week ending March 2nd.

Small-pox continued to smoulder in London and some of the other large towns. The Birmingham epidemic of 1894 lasted on into the winter months, and in the spring a considerable epidemic began in Oldham. At Liverpool and Derby there was some prevalence, and from June onwards the reported cases in London increased considerably, reaching a maximum of ninety-eight in the week ending July 27th. The Vaccination Commission are understood to be preparing their Report, but beyond some bulky volumes of evidence and an interim pronouncement in deprecation of repeated penalties for neglect of vaccination, nothing has been made known of the result of the inquiry, now in the fifth year of its progress. Meanwhile Dr. Monckton Copeman's researches seem to have removed some of the practical difficulties of calf-vaccination, and add strength to the presumption that before long increased facilities will be granted for its more general use.

The Report of the Royal Commission on Tuberculosis, published in April last, affirms the identity of the tuberculosis of man with that of the food animals, and contains important experimental evidence from Dr. Sims Woodhead and Dr. Sidney Martin. It was found that while by feeding susceptible animals with actual tuberculous material the infection was transmitted with tolerable certainty, the meat of tuberculous animals, if free from obvious masses of tubercle, gave negative results as a rule; and that in a general way the facility of transmission, by feeding or inoculation, varied with the degree of tuberculosis. The Commission concluded that if sufficient care were exercised in taking meat from tuberculous cattle a great deal of it might without danger be consumed by the community. Reference is made to the risk of inadvertently smearing good meat with tuberculous matter, from diseased parts of the same or other carcasses, by means of the butcher's knife. Dr. Sims Woodhead's experiments showed that ordinary cooking could not be relied upon to sterilise the interior of joints or rolls of meat. With regard to milk, the Commission came to the conclusion that the power of conveying tuberculosis was dependent upon disease of the udder, and that as this might come on rapidly, in mild as well as in advanced cases of the malady, it was expedient to exclude tuberculous cows from dairy service. They regard the



drinking of raw milk as a dangerous practice, on account of possible contamination by pathogenic organisms, whereas even momentary boiling would probably be sufficient to remove the dangerous quality of tuberculous milk.

The Food Products Adulteration Committee of the House of Commons have issued a second volume of evidence, but have by no means completed the task before them. They do not formulate any conclusions, but recommend that the Committee be re-appointed next session.

Mr. Power's Interim Report on the Causes of Lead Poisoning, which forms an appendix to the Annual Report of the Medical Officer of the Local Government Board for 1893, issued in September, 1895, shows that at last the question is being investigated upon sound scientific lines, and this first instalment of the results is most suggestive. While confirming the generally accepted view that acidity is, chemically speaking, the most constant character of plumbo-solvent waters, Mr. Power carries the explanation a long way further by showing that, so far as peaty waters are concerned, the acidity and coincident ability to dissolve lead are largely dependent upon bacterial growth in the peat itself. Dr. Houston has conducted an elaborate chemical and bacteriological research on behalf of the Board, and has succeeded in isolating two acid-producing microbes found in peat, and capable of growing in sterilised peat-decoction. Another point of novelty is the distinction, which is likely to prove a significant one, between the power of dissolving lead (*plumbo-solvency*) and that of forming a nearly insoluble lead compound loosely attached to the lead surface and not shielding the metal from further attack (*erosion*). The latter is, of course, quite different from, and, indeed, in contrast to, the adherent protective coating which most waters speedily form upon the interior surface of lead pipes, the loose deposit being liable to be swept along by the current, and presumably able to give rise to lead poisoning. The Interim Report does not touch upon the possible remedies for this unfortunate tendency of moorland waters, but the practical side of the question has forced itself upon the attention of communities in which prevalence of lead poisoning has been recognised; and it is worthy of note as a significant precedent that in the Barnsley Water Bill of 1895 the House of Lords inserted a clause making the water-vending authority responsible for the prevention of lead poisoning. Hitherto, on the strength of a decision given in 1886 in *Milnes v. Huddersfield Corporation*, it has been understood that in this respect the responsibility of a water company ends with their

mains, at the point where the consumer's service pipe begins, so that the consumer has no redress even if actively plumbosolvent water be distributed through lead pipes of the company's own prescribing.

Following recent enlightenment as to the conditions under which sand filtration of public water-supplies is to be regarded as a sufficient barrier against water-borne infection, investigation of the efficacy of domestic filters in this respect has been undertaken by Dr. Sims Woodhead and Dr. Cartwright Wood. The results, fully reported in the *British Medical Journal*, show that, among the many household filters in use in Great Britain and subjected to experiment, only the Pasteur-Chamberland and Berkefeld patterns were able to hold back the typhoid bacillus. Sterilisation of water is only one of the tasks which a domestic filter is expected to perform; but it is well to be reminded that, so far as protection from typhoid is concerned, ordinary filters are quite inadequate. They may even add bacteria to the water passing through them and increase the risk of infection.

The most noteworthy water epidemic of the past year was that of enteric fever, which took place in and near the borough of Newport in the Isle of Wight in the autumn of 1894, and was investigated by Dr. Theodore Thomson on behalf of the Local Government Board. It was found to be due to contamination of the public water-supply, which is derived from springs and wells in the chalk, with imperfect safeguards against pollution by soakage from cesspools and the like.

Important negative evidence upon the etiology of diphtheria and enteric fever is contained in a Report to the London County Council by Mr. Parry Laws and Dr. Andrewes. They examined bacteriologically a large number of samples of London sewage, finding the diphtheria bacillus in none, and the typhoid bacillus in one sample only, that one being taken from a drain leading directly from a fever hospital. They found, further, that while *bacillus coli communis* thrives in sterilised sewage, the typhoid bacillus gradually dies out in such a medium, and is quite incapable of active growth; and lastly, that the organisms of sewer air are not those of sewage. The significance of these results, as regards one of the commonly accepted channels of infection in enteric fever outbreaks, is obvious. Meanwhile, attention is being directed to the possibility of enteric infection being conveyed by oysters, the infective quality being presumably attributable to the access of sewage to the oyster beds.

Isolation hospitals continue to increase in number, although many of the additions are of a temporary and makeshift char-

acter. A good deal of information is given in a recent Parliamentary Return which shows the position of the several sanitary authorities in this respect. It reveals many total blanks, and many instances in which the provision is for one disease only, that one being nearly always small-pox—in the first instance, at all events. In certain counties, including Derbyshire, Staffordshire, and Worcestershire, action is being taken by the County Councils, under the Isolation Hospitals Act of 1893. Comparatively few even of the larger towns have any proper means for the isolation of enteric fever or diphtheria ; but there is a growing feeling, to which Dr. Boobbyer gave expression at the Annual Meeting of the British Medical Association, that these diseases should be provided for by sanitary authorities, as scarlet fever and small-pox are. Some of the general hospitals receive enteric cases and even diphtheria ; but, apart from all question of the expediency of this proceeding, the accommodation thus afforded is far from adequate for the needs of the population, and many cases sorely needing isolation remain at home, in crowded dwellings of the poorer class, for want of any suitable place to which they can be removed.

An important step has been taken by the Local Government Board in the issue of a new Memorandum upon the provision of isolation hospitals in general and of small-pox hospitals in particular, formulating certain conditions which are to be regarded as essential in future schemes of the kind to which the sanction of the Board is required. It is advised that a small-pox hospital should not be so placed as to have within a quarter-mile radius a population of 150 to 200 persons, or a public institution of any kind, even a hospital for other infectious diseases ; nor within a half-mile radius a population of 500 to 600 persons, whether in public institutions or not. It is to be inferred that loans will not be granted for the erection of small-pox wards upon the same area as wards for other diseases. This policy, however necessary for the public safety, increases the difficulty of obtaining sites for small-pox hospitals.

Two new forms of steam-disinfecting apparatus have been introduced by Captain Reck, of Copenhagen, and Dr. Thresh, of Chelmsford, respectively. Both are of proved efficiency, and as the steam is employed at low pressure the construction is simpler and less costly than is required for the safe use of steam at higher tension. Experiments with both forms of apparatus confirm the results which Koch published years ago with regard to the penetration and germicidal efficiency of low-pressure steam ; and the comparatively small cost brings the means of

disinfection more within the reach of schools, workhouses, asylums, and other public institutions, as well as hospitals and sanitary authorities.

With one exception no new measures of sanitary importance have been passed during the year. The Housing of the Working Classes Act, 1894, deals merely with borrowing powers for the purposes of reconstruction schemes. The Shop Hours Act of 1895 amends that of 1892 by providing a penalty in cases where an employer fails to exhibit the prescribed notices. The Chimney Sweepers Act, 1894, contains, as the survivor of many more ambitious clauses of the original Bill, one which prohibits solicitation of employment by knocking at doors, ringing bells, or using any noisy instrument by would-be chimney-sweepers: a "nuisance" of a kind different from that of which the Public Health Act takes cognisance. The exception referred to is the Factory and Workshop Act of 1895, which introduces some noteworthy innovations, tending to strengthen the control of the Home Office in matters of industrial hygiene. It prescribes a minimum air space of 250 cubic feet per head in factories and workshops, and 400 cubic feet during hours of overtime, with power to the Home Secretary to raise the standard as regards particular processes of handicrafts, or during hours in which artificial light otherwise than electric light is used. Where the conditions of work are dangerous to health, or to life or limb, the Home Office is authorised to prohibit the use of a factory or workshop. An important but, to medical judgment, curiously limited, section forbids under penalty the making, cleansing, or repairing of *wearing apparel* in any factory, workshop, or out-worker's dwelling in which there is any case of *scarlet fever* or *small-pox*. The principle of compulsory notification is extended to "lead, phosphorus, or arsenical poisoning, or anthrax contracted in any factory or workshop." Notice of such must be sent by the medical practitioner to the Chief Inspector of Factories, the fee for so doing being half-a-crown, and the maximum penalty for omission forty shillings. Such cases are also to be reported by the occupier to the Factory Inspector and to the Certifying Factory Surgeon, like accidents. In factories in which lead, arsenic, or other poisonous substances are used, washing conveniences must be provided. The provisions of the Cotton Cloth Factories Act, with regard to artificial humidity, are extended to all textile factories; but the unwise rule which required the *arrangements* for ventilation to be under the control of the *work-people* has been repealed. It is ordered that a reasonable *temperature* should be maintained in all factories and workshops.

Additional powers are given with regard to the gases, vapours, or other impurities generated or inhaled by workers to an injurious extent; and for the provision of adequate and proper sanitary conveniences for both sexes. The definition of reportable accident has been made intelligible; an accident is reportable if it prevents the sufferer on any one of the three working days next following after the occurrence of the accident from being employed for five hours on his ordinary work. Underground bakehouses other than those in use at the passing of the Act are prohibited, and the sanitary requirements as to bakehouses generally are extended to all districts, the former limitation to places with more than five thousand population being now removed.

Processes in which yellow chromate of lead is used have been added to the list of those which are certified by the Home Secretary to be dangerous to health: the effect of the certificate being to enable the Chief Inspector of Factories to institute special rules, or to require the adoption of special precautions, in the factories or workshops in question.

# SUMMARY OF THE THERAPEUTICS OF THE YEAR 1894-95,

CHIEFLY IN REFERENCE TO NEW REMEDIES.

BY WALTER G. SMITH, M.D. DUBLIN,

*Ex-President of the Royal College of Physicians of Ireland ;*

*Physician-in-Ordinary to His Excellency the Lord Lieutenant ; Physician to Sir Patrick  
Dun's Hospital.*

THE therapeutical record of the past year has not provided us with any sensational or striking innovations. It may be noted with a sense of relief that fewer chemical novelties than usual have been proposed for trial, and the long list of synthetic remedies has had scanty additions made to it. There has been a lull in antiseptics, but a good many papers have been published upon drugs acting upon the nervous system, especially hypnotics. Of the newer hypnotics, trional seems likely to hold its ground, and to be deserving of approval.

The "predominant partner" in the current literature of the time is "serum-therapeutics," which has engrossed a large share of attention, and is duly referred to in the special articles in the "Year-Book."

Among the novelties noticed in the present summary may be mentioned nosophen, iodoformin, argonin, urotropin, apolysin, citrophen, and saligenin.

## HYPNOTICS.

### **Sulphonal group.**

Three organic "sulphones" (*i.e.* combinations of  $\text{SO}_2$  with organic radicals) have now been in the hands of practitioners and pharmacologists for some time. They contain, respectively :—

Two molecules of ethyl, viz. dional (common sulphonal).

Three       "       "       "       trional.

Four       "       "       "       tetronal.

So far, the judgment of the profession seems to be this :—

*Sulphonal* holds its ground, and is by far the most largely prescribed. But it is admitted to have some drawbacks.

Trional is gaining in favour, and offers some distinct advantages over sulphonal.

Tetronal has not made much headway.

Observations on man do not fully confirm Baumann and Kast's theory—*i.e.* that the hypnotic action increases with the number of ethyl groups in the molecule. There is no important difference in the dose of any of these three drugs in man. (*Cf. Studies in Therapeutics, Brit. Med. Journ., Jan. 19, 1895*).

### **Comparative action of sulphonal, trional, and tetronal.**

Dr. Morro, at Baumann's instigation, has made a comparative study of these drugs:—

1. Sulphonal accumulates in the body, and its elimination is not completed in less than three days. It resists metabolism.

2. Trional is more easily and completely decomposed by the metabolism of the body than sulphonal. Hence it is not cumulative.

3. Tetronal is excreted unchanged in the urine, although not to the same extent as sulphonal. Accordingly it also exhibits a postponed and cumulative action.

These facts throw light upon the clinical action of these drugs, and explain the superiority of trional. (*Ther. Monatsh. aus Deut. med. Woch., 34, 1894.*)

### **The comparative values of trional, chloralose, and somnal.**

In patients not the subjects of psychical trouble 1 to 2 grammes of trional (in weakly women, 1 gramme) produce a dreamless sleep, but it has the same disadvantages on administration and awakening as sulphonal; over that drug it has one great advantage, that its use can be continued for a year without producing circulatory, respiratory, or digestive troubles. It acts most beneficially in the insomnia with restlessness of chronic mania and in alcoholic delirium, in which large doses may be given with good effect, but its depressing action is harmful in melancholia and cerebral neurasthenia especially, in which it increases the depression. It should be prescribed at intervals of two days, to avoid cumulative action. Chloralose has one great disadvantage, that it produces symptoms of intoxication, shown by an increased reflex excitability of the cord, and even convulsions, especially if the dose, which is uncertain for the individual, exceed 60 centigrammes, and less in the case of debilitated hysterical or alcoholic subjects. The convulsions rapidly disappear after awakening without any ulterior effect.



Somnal is most beneficial in procuring sleep in acute melancholia ; in other subjects it usually produces first of all slight intoxication, then sleep with pleasant dreams. After doses up to 3 grammes sleep with interruptions comes on in about half an hour, and after 5 grammes profound sleep. On awakening there are no disagreeable after-effects ; this is its great advantage over other hypnotics. It has none of the motor troubles of chloralose. It is contra-indicated in dyspepsia and a tendency to diarrhoea. In their relative actions trional acts more slowly than chloralose, and the after-effect is more prolonged, and awakening is painful ; chloralose before producing sleep induces an intoxication, but the awakening is fresh and agreeable. The intoxication of chloralose is without danger, which is not the case in that rare occurrence with trional when severe symptoms which are without danger appear ; trional, however, has the advantage of being more uniform in its action, and its minimum useful dose is more easily found. Fatal results have been recorded after the administration of from 20 to 25 centigrammes of chloralose, although over 60 have been given without serious symptoms being produced. Marie maintains that with chloralose the best results are obtained by beginning with 10 centigrammes, gradually increasing the dose to 15 or 20. (*Practitioner*, Aug., 1895, from *La Presse Méd.*, Mar., 1895.)

**Trional.** A great number of communications upon this drug have appeared during the past twelve months.

**Spitzer** (*Wiener klin. Woch.*, No. 23, 1895) gives his experience of the use of trional in twenty-five cases of various forms of disease accompanied by pain and insomnia. In nineteen cases trional succeeded. In six cases trional either failed or acted only for a short time, and had to be followed by morphine ; these cases were phthisis (four cases), myoma uteri and arterial sclerosis. Spitzer maintains that trional is a hypnotic not only in various mental conditions, but also in lung and heart diseases. He states that it is especially useful in intercostal neuralgia, sciatica, lumbago, and in the lancinating pains of tabes dorsalis. He considers it to approach closely to morphine in its effect, and suggests it as a substitute for morphine. Sleep is obtained usually soon after the administration of the drug, and in most cases continues through the night. In no case was any injurious effect on heart or respiration observed. In a few cases gastric disturbance took place, and sometimes vomiting after awakening ; this the author considers an idiosyncrasy, as is the case with morphine. (*Brit. Med. Jour. Epit.*, Sep. 7, 1895.)

**Goldmann** believes trional to be one of the best hypnotics we

have. It is to be preferred to sulphonal on account of its prompter action and greater freedom from injurious consequences. The dose should never exceed 2 grammes, and it should be administered freely diluted with a warm liquid. (*Therap. Monatsh.*, Nov., 1894.)

Beyer's observations lead him to essentially the same conclusion. (*Wien. med. Blätter*, 25.)

Claus (*Wiener klin. Rundschau*, 1894, No. 45) speaks of the value of trional in the sleeplessness of children. It is mostly to be avoided in the insomnia of organic nervous disease, such as meningitis, etc. It is especially useful in chorea, convulsions, and the pavor nocturnus. In a case of chorea reported by the author, with marked sleeplessness, it had the best effect. Pavor nocturnus is a condition in which the child suddenly wakes up terrified and often cannot sleep again. A case of this kind is related in which trional was used with success. In one case the child showed some ataxia on the following morning, probably due to too large a dose of the drug. Trional is of little service when the sleeplessness is caused by pain. The doses used by the author are from 3 to 6 grains for infants from one month to one year, increased up to 15 or 20 grains for children from six to ten years. In the insomnia due to toxic influences chloral is more effective. (*Practitioner*, from *Inter. klin. Rundschau*.)

Similar testimony is borne by Wollenmann (*Clin. Excerpts*, June, 1895). Claus has further obtained excellent results with trional in thirty cases of neurasthenia; average dose,  $1\frac{1}{2}$  gramme. (*Wien. klin. Rundschau*, 21, 1895.)

In mental diseases Svetlin and Obersteiner speak highly of trional (*Wien. klin. Woch.*, 14, 1895). Guttman considers that among hypnotics trional offers the greatest advantages with the fewest drawbacks. Hæmatoporphyrinuria has been observed after it. (*Reichs. Medic. Anz.*, 8-10, 1895.)

## LOCAL REMEDIES.

**Nosophen.** Proposed as a substitute for iodoform. Seifert (*Wiener klin. Woch.*, March 21, 1895, p. 213) gives the results of a trial of nosophen. The latter (tetraiodide of phenolphthalein) is a pale yellow powder, tasteless and inodorous, and contains about 60 per cent. of iodine. It is insoluble in water and acids, slightly soluble in alcohol, more readily in ether and chloroform, and easily in alkalies without undergoing change. It reacts chemically as a fairly strong acid, and forms salts with sodium, mercury, etc. It and its sodium salt are absolutely non-poisonous,

epidemic form in February and March. As usual, it had a marked effect upon the death-rate, which in London reached a maximum of 41·2 in the week ending March 9th. This was far exceeded in other towns, and Liverpool had the highest record of 54·4 in the week ending March 2nd.

Small-pox continued to smoulder in London and some of the other large towns. The Birmingham epidemic of 1894 lasted on into the winter months, and in the spring a considerable epidemic began in Oldham. At Liverpool and Derby there was some prevalence, and from June onwards the reported cases in London increased considerably, reaching a maximum of ninety-eight in the week ending July 27th. The Vaccination Commission are understood to be preparing their Report, but beyond some bulky volumes of evidence and an interim pronouncement in deprecation of repeated penalties for neglect of vaccination, nothing has been made known of the result of the inquiry, now in the fifth year of its progress. Meanwhile Dr. Monckton Copeman's researches seem to have removed some of the practical difficulties of calf-vaccination, and add strength to the presumption that before long increased facilities will be granted for its more general use.

The Report of the Royal Commission on Tuberculosis, published in April last, affirms the identity of the tuberculosis of man with that of the food animals, and contains important experimental evidence from Dr. Sims Woodhead and Dr. Sidney Martin. It was found that while by feeding susceptible animals with actual tuberculous material the infection was transmitted with tolerable certainty, the meat of tuberculous animals, if free from obvious masses of tubercle, gave negative results as a rule; and that in a general way the facility of transmission, by feeding or inoculation, varied with the degree of tuberculosis. The Commission concluded that if sufficient care were exercised in taking meat from tuberculous cattle a great deal of it might without danger be consumed by the community. Reference is made to the risk of inadvertently smearing good meat with tuberculous matter, from diseased parts of the same or other carcasses, by means of the butcher's knife. Dr. Sims Woodhead's experiments showed that ordinary cooking could not be relied upon to sterilise the interior of joints or rolls of meat. With regard to milk, the Commission came to the conclusion that the power of conveying tuberculosis was dependent upon disease *of the udder*, and that as this might come on rapidly, in mild as well as in advanced cases of the malady, it was expedient to *exclude tuberculous cows* from dairy service. They regard the

drinking of raw milk as a dangerous practice, on account of possible contamination by pathogenic organisms, whereas even momentary boiling would probably be sufficient to remove the dangerous quality of tuberculous milk.

The Food Products Adulteration Committee of the House of Commons have issued a second volume of evidence, but have by no means completed the task before them. They do not formulate any conclusions, but recommend that the Committee be re-appointed next session.

Mr. Power's Interim Report on the Causes of Lead Poisoning, which forms an appendix to the Annual Report of the Medical Officer of the Local Government Board for 1893, issued in September, 1895, shows that at last the question is being investigated upon sound scientific lines, and this first instalment of the results is most suggestive. While confirming the generally accepted view that acidity is, chemically speaking, the most constant character of plumbo-solvent waters, Mr. Power carries the explanation a long way further by showing that, so far as peaty waters are concerned, the acidity and coincident ability to dissolve lead are largely dependent upon bacterial growth in the peat itself. Dr. Houston has conducted an elaborate chemical and bacteriological research on behalf of the Board, and has succeeded in isolating two acid-producing microbes found in peat, and capable of growing in sterilised peat-decoction. Another point of novelty is the distinction, which is likely to prove a significant one, between the power of dissolving lead (*plumbo-solvency*) and that of forming a nearly insoluble lead compound loosely attached to the lead surface and not shielding the metal from further attack (*erosion*). The latter is, of course, quite different from, and, indeed, in contrast to, the adherent protective coating which most waters speedily form upon the interior surface of lead pipes, the loose deposit being liable to be swept along by the current, and presumably able to give rise to lead poisoning. The Interim Report does not touch upon the possible remedies for this unfortunate tendency of moorland waters, but the practical side of the question has forced itself upon the attention of communities in which prevalence of lead poisoning has been recognised; and it is worthy of note as a significant precedent that in the Barnsley Water Bill of 1895 the House of Lords inserted a clause making the water-vending authority responsible for the prevention of lead poisoning. Hitherto, on the strength of a decision given in 1886 in *Milnes v. Huddersfield Corporation*, it has been understood that in this respect the responsibility of a water company ends with their

mains, at the point where the consumer's service pipe begins, so that the consumer has no redress even if actively plumbo-solvent water be distributed through lead pipes of the company's own prescribing.

Following recent enlightenment as to the conditions under which sand filtration of public water-supplies is to be regarded as a sufficient barrier against water-borne infection, investigation of the efficacy of domestic filters in this respect has been undertaken by Dr. Sims Woodhead and Dr. Cartwright Wood. The results, fully reported in the *British Medical Journal*, show that, among the many household filters in use in Great Britain and subjected to experiment, only the Pasteur-Chamberland and Berkefeld patterns were able to hold back the typhoid bacillus. Sterilisation of water is only one of the tasks which a domestic filter is expected to perform; but it is well to be reminded that, so far as protection from typhoid is concerned, ordinary filters are quite inadequate. They may even add bacteria to the water passing through them and increase the risk of infection.

The most noteworthy water epidemic of the past year was that of enteric fever, which took place in and near the borough of Newport in the Isle of Wight in the autumn of 1894, and was investigated by Dr. Theodore Thomson on behalf of the Local Government Board. It was found to be due to contamination of the public water-supply, which is derived from springs and wells in the chalk, with imperfect safeguards against pollution by soakage from cesspools and the like.

Important negative evidence upon the etiology of diphtheria and enteric fever is contained in a Report to the London County Council by Mr. Parry Laws and Dr. Andrewes. They examined bacteriologically a large number of samples of London sewage, finding the diphtheria bacillus in none, and the typhoid bacillus in one sample only, that one being taken from a drain leading directly from a fever hospital. They found, further, that while *bacillus coli communis* thrives in sterilised sewage, the typhoid bacillus gradually dies out in such a medium, and is quite incapable of active growth; and lastly, that the organisms of sewer air are not those of sewage. The significance of these results, as regards one of the commonly accepted channels of infection in enteric fever outbreaks, is obvious. Meanwhile, attention is being directed to the possibility of enteric infection being conveyed by oysters, the infective quality being presumably attributable to the access of sewage to the oyster beds.

Isolation hospitals continue to increase in number, although many of the additions are of a temporary and makeshift char-

acter. A good deal of information is given in a recent Parliamentary Return which shows the position of the several sanitary authorities in this respect. It reveals many total blanks, and many instances in which the provision is for one disease only, that one being nearly always small-pox—in the first instance, at all events. In certain counties, including Derbyshire, Staffordshire, and Worcestershire, action is being taken by the County Councils, under the Isolation Hospitals Act of 1893. Comparatively few even of the larger towns have any proper means for the isolation of enteric fever or diphtheria ; but there is a growing feeling, to which Dr. Boobyer gave expression at the Annual Meeting of the British Medical Association, that these diseases should be provided for by sanitary authorities, as scarlet fever and small-pox are. Some of the general hospitals receive enteric cases and even diphtheria ; but, apart from all question of the expediency of this proceeding, the accommodation thus afforded is far from adequate for the needs of the population, and many cases sorely needing isolation remain at home, in crowded dwellings of the poorer class, for want of any suitable place to which they can be removed.

An important step has been taken by the Local Government Board in the issue of a new Memorandum upon the provision of isolation hospitals in general and of small-pox hospitals in particular, formulating certain conditions which are to be regarded as essential in future schemes of the kind to which the sanction of the Board is required. It is advised that a small-pox hospital should not be so placed as to have within a quarter-mile radius a population of 150 to 200 persons, or a public institution of any kind, even a hospital for other infectious diseases ; nor within a half-mile radius a population of 500 to 600 persons, whether in public institutions or not. It is to be inferred that loans will not be granted for the erection of small-pox wards upon the same area as wards for other diseases. This policy, however necessary for the public safety, increases the difficulty of obtaining sites for small-pox hospitals.

Two new forms of steam-disinfecting apparatus have been introduced by Captain Reck, of Copenhagen, and Dr. Thresh, of Chelmsford, respectively. Both are of proved efficiency, and as the steam is employed at low pressure the construction is simpler and less costly than is required for the safe use of steam at higher tension. Experiments with both forms of apparatus confirm the results which Koch published years ago with regard to the penetration and germicidal efficiency of low-pressure steam ; and the comparatively small cost brings the means of

disinfection more within the reach of schools, workhouses, asylums, and other public institutions, as well as hospitals and sanitary authorities.

With one exception no new measures of sanitary importance have been passed during the year. The Housing of the Working Classes Act, 1894, deals merely with borrowing powers for the purposes of reconstruction schemes. The Shop Hours Act of 1895 amends that of 1892 by providing a penalty in cases where an employer fails to exhibit the prescribed notices. The Chimney Sweepers Act, 1894, contains, as the survivor of many more ambitious clauses of the original Bill, one which prohibits solicitation of employment by knocking at doors, ringing bells, or using any noisy instrument by would-be chimney-sweepers: a "nuisance" of a kind different from that of which the Public Health Act takes cognisance. The exception referred to is the Factory and Workshop Act of 1895, which introduces some noteworthy innovations, tending to strengthen the control of the Home Office in matters of industrial hygiene. It prescribes a minimum air space of 250 cubic feet per head in factories and workshops, and 400 cubic feet during hours of overtime, with power to the Home Secretary to raise the standard as regards particular processes of handicrafts, or during hours in which artificial light otherwise than electric light is used. Where the conditions of work are dangerous to health, or to life or limb, the Home Office is authorised to prohibit the use of a factory or workshop. An important but, to medical judgment, curiously limited, section forbids under penalty the making, cleansing, or repairing of *wearing apparel* in any factory, workshop, or out-worker's dwelling in which there is any case of *scarlet fever or small-pox*. The principle of compulsory notification is extended to "lead, phosphorus, or arsenical poisoning, or anthrax contracted in any factory or workshop." Notice of such must be sent by the medical practitioner to the Chief Inspector of Factories, the fee for so doing being half-a-crown, and the maximum penalty for omission forty shillings. Such cases are also to be reported by the occupier to the Factory Inspector and to the Certifying Factory Surgeon, like accidents. In factories in which lead, arsenic, or other poisonous substances are used, washing conveniences must be provided. The provisions of the Cotton Cloth Factories Act, with regard to artificial humidity, are extended to all textile factories; but the unwise rule which required the *arrangements* for ventilation to be under the control of the *work-people* has been repealed. It is ordered that a reasonable *temperature* should be maintained in all factories and workshops.



Additional powers are given with regard to the gases, vapours, or other impurities generated or inhaled by workers to an injurious extent; and for the provision of adequate and proper sanitary conveniences for both sexes. The definition of reportable accident has been made intelligible; an accident is reportable if it prevents the sufferer on any one of the three working days next following after the occurrence of the accident from being employed for five hours on his ordinary work. Underground bakehouses other than those in use at the passing of the Act are prohibited, and the sanitary requirements as to bakehouses generally are extended to all districts, the former limitation to places with more than five thousand population being now removed.

Processes in which yellow chromate of lead is used have been added to the list of those which are certified by the Home Secretary to be dangerous to health: the effect of the certificate being to enable the Chief Inspector of Factories to institute special rules, or to require the adoption of special precautions, in the factories or workshops in question.

# SUMMARY OF THE THERAPEUTICS OF THE YEAR 1894-95,

CHIEFLY IN REFERENCE TO NEW REMEDIES.

BY WALTER G. SMITH, M.D. DUBLIN,

*Ex-President of the Royal College of Physicians of Ireland ;*

*Physician-in-Ordinary to His Excellency the Lord Lieutenant ; Physician to Sir Patrick  
Dun's Hospital.*

THE therapeutical record of the past year has not provided us with any sensational or striking innovations. It may be noted with a sense of relief that fewer chemical novelties than usual have been proposed for trial, and the long list of synthetic remedies has had scanty additions made to it. There has been a lull in antiseptics, but a good many papers have been published upon drugs acting upon the nervous system, especially hypnotics. Of the newer hypnotics, trional seems likely to hold its ground, and to be deserving of approval.

The "predominant partner" in the current literature of the time is "serum-therapeutics," which has engrossed a large share of attention, and is duly referred to in the special articles in the "Year-Book."

Among the novelties noticed in the present summary may be mentioned nosophen, iodoformin, argonin, urotropin, apolysin, citrophen, and saligenin.

## HYPNOTICS.

### **Sulphonal group.**

Three organic "sulphones" (*i.e.* combinations of  $\text{SO}_2$  with organic radicals) have now been in the hands of practitioners and pharmacologists for some time. They contain, respectively :—

Two molecules of ethyl, viz. dional (common sulphonal).

Three       "       "       "       trional.

Four       "       "       "       tetronal.

So far, the judgment of the profession seems to be this :—

*Sulphonal* holds its ground, and is by far the most largely prescribed. But it is admitted to have some drawbacks.

Trional is gaining in favour, and offers some distinct advantages over sulphonal.

Tetronal has not made much headway.

Observations on man do not fully confirm Baumann and Kast's theory—*i.e.* that the hypnotic action increases with the number of ethyl groups in the molecule. There is no important difference in the dose of any of these three drugs in man. (*Cf. Studies in Therapeutics, Brit. Med. Journ., Jan. 19, 1895*).

### **Comparative action of sulphonal, trional, and tetronal.**

Dr. Morro, at Baumann's instigation, has made a comparative study of these drugs:—

1. Sulphonal accumulates in the body, and its elimination is not completed in less than three days. It resists metabolism.

2. Trional is more easily and completely decomposed by the metabolism of the body than sulphonal. Hence it is not cumulative.

3. Tetronal is excreted unchanged in the urine, although not to the same extent as sulphonal. Accordingly it also exhibits a postponed and cumulative action.

These facts throw light upon the clinical action of these drugs, and explain the superiority of trional. (*Ther. Monatsh. aus Deut. med. Woch., 34, 1894.*)

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Somnal is most beneficial in procuring sleep in acute melancholia ; in other subjects it usually produces first of all slight intoxication, then sleep with pleasant dreams. After doses up to 3 grammes sleep with interruptions comes on in about half an hour, and after 5 grammes profound sleep. On awakening there are no disagreeable after-effects ; this is its great advantage over other hypnotics. It has none of the motor troubles of chloralose. It is contra-indicated in dyspepsia and a tendency to diarrhoea. In their relative actions trional acts more slowly than chloralose, and the after-effect is more prolonged, and awakening is painful ; chloralose before producing sleep induces an intoxication, but the awakening is fresh and agreeable. The intoxication of chloralose is without danger, which is not the case in that rare occurrence with trional when severe symptoms which are without danger appear ; trional, however, has the advantage of being more uniform in its action, and its minimum useful dose is more easily found. Fatal results have been recorded after the administration of from 20 to 25 centigrammes of chloralose, although over 60 have been given without serious symptoms being produced. Marie maintains that with chloralose the best results are obtained by beginning with 10 centigrammes, gradually increasing the dose to 15 or 20. (*Practitioner*, Aug., 1895, from *La Presse Méd.*, Mar., 1895.)

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## LOCAL REMEDIES.

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and iodine is not set free in the organism. (A) It is specially adapted, owing to its insolubility and lack of odour, to the after-treatment of operations on the nares: (1) As an insufflation applied after the cautery (chemical or galvanic) it prevents supuration and formation of adhesions. (2) In rhinitis sicca it causes no irritation and no secretion. (3) In rhinitis hypersecretoria it diminishes the secretion and cures the inflammation more quickly than bismuth, aristol, europphen, or sodium sozoiodolate. (4) It appears to shorten the course of rhinitis acuta. (5) In one case of nasal diphtheria, where it was used, the membrane disappeared in four days. (B) In venereal diseases: (1) Six cases of balanoposthitis were cured in three days. (2) In cases of soft chancre it was equal to europphen if precautions were taken to prevent it from forming a crust and retaining the secretion, by first cauterising the sore with liq. ferri. (3) In hard chancre the number of cases treated was too small to form any opinion. (C) One case of traumatic weeping eczema was cured in a remarkably short time by using nosophen in powder. (*Brit. Med. Jour. Epit.*, April 13.)

**Europphen.** This substitute for iodoform is undoubtedly an agreeable and efficient remedy, and I have used it repeatedly during the past two years. De Buch and Walton (*Ext. de la Flandre Méd.*, 1894) treat of the surgical applications of europphen. Iodoform has some great disadvantages. It often irritates the skin, and provokes erythema, urticaria, etc. It is a bad cicatrising agent; granulating wounds dressed with it become indolent, flabby, and are slow to be covered with epidermis. Its odour is most objectionable, especially for private practice. The hitherto suggested methods of deodorisation of it are unsatisfactory. Lastly, it needs careful watching on account of its toxicity. Iodoform poisoning is capricious and peculiar, suddenly bursting forth without prodromata in the susceptible, causing grave cerebral disturbances which may even be fatal. The merits of iodoform rest on its great proportion of iodine (96.47 per cent.). This, loosely fixed in the molecule, separates itself continuously in presence of organic juices, and to this nascent iodine is due its microbicidal action on infected wounds. Various iodised substances, mostly of the aromatic series, have been brought forward of recent years to obtain the advantages of iodoform without its disadvantages. Such are the sozoiodols, losophan, and antiseptol. Since, however, their iodine is not liberated freely, they cannot replace iodoform. Aristol and europphen present stronger claims. The latter (isobutyl-ortho-cresol-iodide—28 per cent. iodine) is superior to iodoform in that it has a

very slight agreeable odour, feeble toxicity, lightness (five times lighter). It possesses almost the antiseptic properties of iodoform, slowly frees its iodine in alkaline media, diminishes secretion, and opposes diapedesis of the white corpuscles. Clinical experience has shown its antivenereal and antisymphilitic value; and Jasinsky and Christmann attest its antituberculous properties. Europhen keeps wounds very dry, favours the reunion of sutured wounds, and the granulation and cicatrisation of open sores and cavities. The authors give twenty instances of its use. The only drawbacks noted were one case of well-marked erythema, and complaints from two or three patients of slight local smarting. It strongly adheres to everything it touches, a property which, if advantageous as regards wounds, may present inconveniences to instruments and the surgeon's hands. (*Brit. Med. Journ. Epit.*, May 18, 1895.)

**Strauss** also strongly recommends europhen. It is lighter than iodoform, and 1 part of it goes as far as 5 parts of iodoform in covering a surface. Since it is readily decomposed and gives off free iodine, it should not be prescribed with starch pastes, metallic oxides, or mercurial salts. Lanolin is an excellent vehicle, and powdered talc may be added.

Europhen has now been extensively employed by a large number of observers, and has found its scope in dermatology, syphilitic sores, gynæcology, dressing of wounds, in affections of the nose and larynx, and of the ear and eye. (*Deutsche med. Zeit.*, 1894.)

In America europhen has largely supplanted iodoform, and it is lauded by **Eldredge** (*Cincinnati Lancet-Clinic*, Mar., 1895) and **Waugh** (*New Engl. Med. Monthly*, July, 1895).

**Aristol**, an iodised thymol, was first brought under notice in 1890 and still attracts some attention.

**Gevaert** has used it with good effect in lupus, and also recommends it in suppurating bony cavities—*e.g.* of frontal sinus and middle ear (*Flandre Méd.*, 1894). It is said to be especially useful in burns. In phthisis its hypodermic use (in sweet almond oil) has found some to recommend it, but the results are not sufficiently encouraging, and the operation is followed by smart pain. (*Grusdieff, Ther. Woch.*, Sept. 1, 1895.)

**Iodoformin** is stated to fulfil the condition of an odourless compound which yet contains the iodoform molecule unaltered, in the proportion of 75 per cent. It is a fine white powder, turning yellow by exposure to light. In presence of acid or alkaline fluids iodoform is liberated. The powder is absolutely un-irritating. (*Ther. Monatsh.*, Sept., 1895.)



**Argonin.** Under this name Liebrecht describes a compound obtained by treating the sodium combination of casein with silver nitrate and precipitating with alcohol. When dried it is a white powder, easily soluble in hot water, sparingly in cold water. By careful manipulation solutions containing 10 per cent. and upwards can be prepared. Its solutions react neutral to test-paper, and must be preserved from the light.

Experiments by Meyer show that argonin is a disinfectant of no inconsiderable antiseptic power. It contains 4.28 per cent. of silver, and is perhaps worth trying locally in affections of mucous membranes. To begin with, use an aqueous solution 1.5 per cent. (*Ther. Monatsch.*, June, 1895.)

**Tannigen** is the diacetyl derivative of tannin. It has been employed with good results in the treatment of chronic diarrhoea, especially that occurring in phthisical individuals. This remedy is administered internally in doses of 3 to  $7\frac{1}{2}$  grains (0.20 to 0.50 gramme), and even as high as 60 grains (4 grammes) a day. Locally applied in a 3 per cent. solution in 5 per cent. of sodium phosphate solution, tannigen has rendered good service in the treatment of chronic pharyngitis.

Since Meyer and Müller reported favourably of it ("Year-Book," 1895, p. 457), Künkler and Drews have added their testimony; and De Buch concludes that it is a prompt and valuable remedy in acute and chronic catarrh of the bowels.

It can be readily taken stirred up in milk. (*Wien. klin. Rundschau*, 1895.)

**Ichthyol.** Recommended in gonorrhœal epididymitis by Mayländer (*Pest. Med.-Chir. Presse*, 1895), and in acute suppurations by Liscia (*Gazz. degli Ospedali*, 1895).

Van der Willigen warmly commends ichthyol in the treatment of fissures of the anus. The pure drug is introduced into the anus with a brush. The contraction of the sphincter forces this into all the folds of the mucous membrane. Little pain is excited. Treatment should be repeated daily. The patient is given liquid diet and occasionally castor oil. Of four patients, the first, who had previously been treated by every means short of operation, was cured in eight days, the other three in two or three weeks. One had already been subjected to operation without benefit. There was no recurrence. (*Practitioner*, Aug., 1895, from *Mon. f. prakt. Derm.*)

**Urotropin** is proposed by Nicolaier as a solvent for uric acid. It is prepared by evaporating an ammoniacal solution of formaldehyde. It appears as colourless crystals, readily soluble

in water, and its formula is  $(\text{CH}_2)_6\text{N}_4$ ; i.e. it is hexamethylenetetramine.

Its solvent action upon uric acid is exhibited, not only in watery solutions, but also in the urine, and thus is superior to piperazin, lycetol, and lysidin. The drug quickly ( $\frac{1}{4}$  hour) passes out of the system into the urine, in which it can be detected by bromine water, which throws down a yellow precipitate of urotropindibromide. It also possesses antiseptic and germicide properties. In two cases of cystitis, with ammoniacal urine, urotropin rendered the urine acid. Dose, 1-1 $\frac{1}{2}$  gramme, given in water, and taken in the morning. (*Ther. Monatsh.*, from *Deutsche med. Woch.*, 1895.)

## THERAPEUTICS OF IRON.

**Ferratin**, proposed by Schmiedeberg (*cf.* "Year Book," 1895, p. 450) is well spoken of by several observers, *e.g.* Von Ziemssen, Kündig, and Jaquet. Dose, 15-30 grains, thrice daily.

It not only induces a speedy increase in the number of blood-corpuscles and of hæmoglobin (over 5 per cent. in eight days), but also leads to increase of weight and improvement in the general condition. (*Ther. Monatsh.*, Aug., 1895.)

**Hæmol** and **Hæmogallol**, proposed by Kobert (*cf.* "Year-Book," 1895, p. 450), have found supporters in Germany and America, viz. Ramm, Weiss, Porter, etc., but do not appear to have been tried in England.

**Hæmalbumin**, introduced by Dahmen (*cf.* "Year-Book," 1895, p. 450) has been reported upon by Mörs, Döllken, Spiegelberg, and Schroers. But its superiority is not clearly demonstrated. Finsen (*Ugeskrift for Læge*, No. 51, 1894) has succeeded in preparing a durable preparation from blood, consisting principally of dried albumins, holding a large amount of iron. It is a dark brown powder, odourless and almost tasteless. It is prepared from the blood of the ox or pig. The albumins are separated from the extractives and salts by means of Panum's method, somewhat simplified, and after many washings the uncoagulated albumins are centrifugalised and then evaporated at a low temperature (vacuum). At the preparation measures are taken to destroy any micro-organisms that may be present. About one pound of hæmatin-albumin contains the albumins of about six pounds of blood. The remedy has been tried in several hospitals in Copenhagen with satisfactory results. It is well borne and easily assimilated. It does not cause constipation, but gives a reddish colour to the motions. The dose is 1 to 2 teaspoonfuls

three times a day for adults. It may be taken either pure or mixed with cocoa. (*Brit. Med. Jour. Epit.*, Feb. 2, 1895.)

## ANTIPYRETICS AND ANTINEURALGICS.

### **Antipyrin.**

There is little additional to report. In pruritus **F. Arnstein** (*Gazeta Lekarska*, No. 48, 1894, p. 1298), following Blaschko's recommendation (*Berlin. klin. Wochenschr.*, No. 22, 1891), has tried antipyrin internally (in powder, 1 gramme at bedtime) in two severe cases, one of which was that of a woman, aged twenty-eight, with pruritus nervosus of three months' standing, while the other referred to a woman, aged sixty-six, with inveterate pruritus senilis. In both the itching quickly subsided, to disappear altogether in a couple of weeks. Both the patients had previously been treated by various physicians and after various ordinary methods without obtaining any relief whatever. (*Brit. Med. Jour. Epit.*, Feb. 23, 1895.)

As a hæmostatic **Roswell Park**, of Buffalo (*Med. News*, 1895), has found a 4 per cent solution of antipyrin useful as a hæmostatic in checking general oozing from a bleeding surface, and also by experiments claims for it antiseptic properties which compare favourably with most of the anilin and coal-tar derivatives. By experiments on animals he has shown that it can be used with safety on the peritoneum, and he now employs it in general surgery. As a styptic it has the advantage of constricting the small vessels without causing any external clot, which may break down. In cases of epistaxis he has found it useful when sprayed into the nose. In this form of a spray to the nose he has found it useful in certain cases of inflammatory occlusion, and also for ordinary headaches, coryza, etc.

### **Apolysin and citrophen.**

These are relatives of, and possible substitutes for phenacetin. As phenacetin is a combination of phenetidin and acetic acid, so apolysin and citrophen are combinations of phenetidin with citric acid. Apolysin is formed of one molecule of citric acid with one molecule of phenetidin, and citrophen of one molecule of citric acid with three molecules of phenetidin.

Apolysin is a white crystalline powder, with a sour taste soluble in 55 parts of cold water, and very readily in warm water. Citrophen is a white crystalline powder, less soluble in water. Average dose of either, 0·5—1 gramme, up to 6 grammes in the day. Both act similarly to phenacetin as antipyretics and analgesics. (**Benario and Seifert**, *Deut. med. Woch.*, 1895.)

**Saligenin** is the radical of the glucoside salicin, and by oxidation is converted into salicylic acid. Until lately saligenin was costly, as it could be prepared only from salicin. It can now be made synthetically from carbolic acid and formaldehyde.

**Senator** is of opinion that the action of salicin depends upon its conversion within the body more or less into salicylic acid, and **Lederer** now suggests that saligenin should be tried.

Accordingly, **Walter** has tested the drug in eight cases (seven of acute articular rheumatism, and one of gout). He found that it promptly relieved pain and swelling, and led to no unpleasant by-effects.

Dose, 0·—51 gramme, every hour or two, either in powder, or in dilute alcoholic solution. It is quite possible that saligenin acts as such, without invoking its conversion into salicylic acid. (*Ther. Monats.*, Jan. and April, 1895, from *Münch. med. Woch.*)

**Salophen** continues to be employed by practitioners in various parts of the world. It is recommended by **Lavrand** as being fully as valuable in rheumatism as salicylate of sodium, while it does not provoke the same headache, tinnitus aurium, or feeling of intoxication. It does not affect gastric digestion or give rise to nausea, as it does not decompose except in an alkaline medium (the intestine). The taste is insipid and not disagreeable. The average dose is 2 grammes (31 grains) daily, divided into four doses. (*Practitioner*, 1895.)

Similar testimony is borne by **Waters** of New York. (*New York Med. Journ.*, May, 1895.)

**De Buch** and **Vanderlinden** record ten instances of its anti-neuralgic and analgesic powers. No troublesome accessory symptoms attend its use. (*Brit. Med. Journ. Epit.*, Jan. 19, 1895, from *La Flandre Méd.*)

**Drews**, of Hamburg, specially recommends salophen in children's diseases, and it is easily taken by young folk, either as a powder, or floated on water. (*Brit. Med. Journ. Epit.*, Feb. 16, 1895, from *Allgem. med. Cent. Zeit.*, 1894.)

# SELECTED LIST OF NEW BOOKS, NEW EDITIONS AND TRANSLATIONS.

## DISEASES OF THE HEART AND CIRCULATION.

- Bruggisser, Walter — "Tuberkulose des Myocardium." (Thesis.) 45 pp., 8vo. Wurzburg, *F. Fromme*, 1894.
- Delacroix, Edouard G. — "Contribution à l'étude des endocardites gonococciques." Thèse de Paris, No. 502. 52 pp., 4to. Paris, 1894.
- Ewart, W. — "Heart Studies, chiefly Clinical." Part I.: "Pulse Sensations." 512 pp., 8vo. London, *Baillière, Tindall and Cox*, 1894. 15s.
- Foxwell, A. — "Essays in Heart and Lung Disease." 480 pp., 8vo. London, 1895. 12s. 6d.
- Gochbaum, Marc — "Étude sur l'évolution du rétrécissement mitral basée sur la modification des signes physiques." 32 pp., 8vo. Paris, *G. Steinheil*, 1894.
- Harris, T. — "Indurative Mediastino-Pericarditis." (Reprinted from the *Medical Chronicle*, 1894-5.) 68 pp., large 8vo. London, *Smith and Elder*, 1895. 5s.
- Lefert, Paul — "La pratique des maladies du cœur et de l'appareil circulatoire dans les hôpitaux de Paris. Aide-mémoire et formulaire de thérapeutique appliquée." 288 pp., 16mo. Paris, *J. B. Baillière et fils*, 1895.
- Martha, A. — "Des endocardites aiguës." 164 pp., 12mo. Paris, *Rueff et Cie.*, 1895.
- Oliver, George — "Pulse-gauging: a Clinical Study of Radial Measurement and Pulse-pressure." Illustr. 188 pp., 8vo. London, *H. K. Lewis*, 1895. 3s. 6d.
- Schott, Th. — "Zur acuten Ueberanstrengung des Herzens und deren Behandlung." 2te Aufl. 32 pp., 8vo. Wiesbaden, *J. F. Bergmann*, 1894.
- Thorne, W. Bezly — "The Schott Methods of the Treatment of Chronic Diseases of the Heart." 80 pp., 8vo. London, *Churchill*, 1895. 5s.
- Weill, E. — "Traité des maladies du cœur chez les enfants." 400 pp., 8vo. Paris, 1895. 6s. 8d.

## DISEASES OF THE LUNGS AND ORGANS OF RESPIRATION.

- Brullier, L. — "De la répartition des épanchements séro-fibrineux dans la cavité pleurale." 123 pp., 4to. Paris, 1895. 3s. 4d.

- Campe, G. — "Ueber Tumoren der knöchernen Thoraxwand." 79 pp., 8vo. Göttingen, *Vanderhoeck u. Ruprecht*, 1895. 2s.
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- Comby, Jules — "L'empyème pulsatile." 224 pp., 12mo. *Rueff et Cie.*, 1895.
- Finkler — "Infektionen der Lunge durch Streptococcen und Influenzabacillen." 102 pp., 8vo. Bonn, *F. Cohen*, 1895. 2s.
- Foxwell, A. — "Essays in Heart and Lung Disease." 480 pp., 8vo. London, *Griffin*, 1895. 12s. 6d.
- Gilbotteau, André — "De l'influence de l'hystérie sur la marche de la tuberculose pulmonaire." Thèse de Paris, No. 403. 59 pp., 4to. Paris, 1894.
- Lefert Paul — "La pratique des maladies des poumons et de l'appareil respiratoire dans les hôpitaux de Paris. Aide-mémoire et formulaire de thérapeutique appliquée." 283 pp., 16mo. Paris, *J. B. Baillière et fils*, 1894.
- Léon-Petit, E. P. — "Le phthisique et son traitement hygiénique." Illustr. 12mo. Paris, 1895. 3s. 6d.
- Michel, Maurice — "Etude sur la tuberculose pulmonaire des vieillards." 8vo. Paris, *G. Steinheil*, 1894.
- Murrell, W. — "Clinical Lectures on the Prevention of Consumption, delivered at the Westminster Hospital." 98 pp., 8vo. London, *Baillière, Tindall and Cox*. 3s. 6d.
- Parsons, Frank S. — "A Practical Theory and Treatment of Pulmonary Tuberculosis." 77 pp., 16mo. Philadelphia, *Medical Publishing Co.*, 1895. 2s.
- Renzi, E. de — "Pathogenese, Symptomatologie und Behandlung der Lungenschwindsucht." Bearbeitet nach der 11te Aufl. des italienischen Originals. 8vo. Wien, *A. Hölder*, 1894.
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- André, G.—“*Précis clinique des maladies du système nerveux.*” 1,100 pp., 18mo. Paris, 1895. 8s. 6d.
- Babes, V., et al. — “*Atlas der pathologischen Histologie des Nervensystems.*” Herausgegeben von V. Babes, P. Blocq, Ehrlich et al. Redigiert von V. Babes. Lief. 4. 35 pp., 8vo. Berlin, A. Hirschwald, 1895. 16s.
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- Beach, F.—“*The Treatment and Education of Mentally Feeble Children.*” 8vo. London, Churchill, 1895. 1s. 6d.
- Bourneville — “*Assistance, traitement et éducation des enfants idiots et dégénérés.*” 8vo. Paris, 1895. 3s.
- Bourru et Burot—“*La suggestion mentale et la variation de la personnalité.*” 350 pp., 16mo. Paris, 1895. 3s.
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Somnal is most beneficial in procuring sleep in acute melancholia ; in other subjects it usually produces first of all slight intoxication, then sleep with pleasant dreams. After doses up to 3 grammes sleep with interruptions comes on in about half an hour, and after 5 grammes profound sleep. On awakening there are no disagreeable after-effects ; this is its great advantage over other hypnotics. It has none of the motor troubles of chloralose. It is contra indicated in dyspepsia and a tendency to diarrhoea. In their relative actions trional acts more slowly than chloralose, and the after effect is more prolonged, and awakening is painful ; chloralose before producing sleep induces an intoxication, but the awakening is fresh and agreeable. The intoxication of chloralose is without danger, which is not the case in that rare occurrence with trional when severe symptoms which are without danger appear ; trional, however, has the advantage of being more uniform in its action, and its minimum useful dose is more easily found. Fatal results have been recorded after the administration of from 20 to 25 centigrammes of chloralose, although over 60 have been given without serious symptoms being produced. Marie maintains that with chloralose the best results are obtained by beginning with 10 centigrammes, gradually increasing the dose to 15 or 20. (*Practitioner*, Aug., 1895, from *La Presse Méd.*, Mar., 1895.)

**Trional.** A great number of communications upon this drug have appeared during the past twelve months.

**Spitzer** (*Wiener klin. Woch.*, No. 23, 1895) gives his experience of the use of trional in twenty five cases of various forms of disease accompanied by pain and insomnia. In nineteen cases trional succeeded. In six cases trional either failed or acted only for a short time, and had to be followed by morphine ; these cases were phthisis (four cases), myoma uteri and arterial sclerosis. Spitzer maintains that trional is a hypnotic not only in various mental conditions, but also in lung and heart diseases. He states that it is especially useful in intercostal neuralgia, sciatica, lumbago, and in the lancinating pains of tabes dorsalis. He considers it to approach closely to morphine in its effect, and suggests it as a substitute for morphine. Sleep is obtained usually soon after the administration of the drug, and in most cases continues through the night. In no case was any injurious effect on heart or respiration observed. In a few cases gastric disturbance took place, and sometimes vomiting after awakening ; this the author considers an idiosyncrasy, as is the case with morphine. (*Brit. Med. Jour. Epit.*, Sep. 7, 1895.)

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impurities which lie hidden within the interior of the instrument. There can be no doubt that the greatest laxity obtains in this direction, and many a life is thrown away as the result of septic cystitis and subsequent pyelonephritis, which could easily have been saved if the surgeon had only attended to the most ordinary precautions as to ensuring asepsis of instruments employed. All attempts, therefore, to improve the quality of catheters and to construct them so that it is an easy matter to render them aseptic are steps in the right direction. Dr. Ward Cousins has devised a set of catheters with a view of obviating some of the disadvantages which are inherent in the usual type. One of the chief changes consists in the point of the instrument being solid, and terminating in a flat surface within the tube just above the first perforation. To purify it he recommends the use of a steam spray made for the purpose (one of the old-fashioned carbolic-spray producers, now happily obsolete, can readily be adapted for the purpose), and after it has been well cleansed in this way the exterior is wiped with leather and the interior polished with a flexible stilette which terminates in a flat metal plate which exactly fits the bore of the instrument. The whole apparatus is made by Maw, Son and Thompson. The same firm are also producing soft catheters which it is hoped will fulfil the requirements of the aseptic surgeon more completely than those in general use; for in the latter, whilst every care is taken to render the exterior smooth and even, the interior of the instrument is carelessly finished, or, perhaps we might say more correctly, not finished at all. It is rough and irregular, and after it has been used a few times becomes thoroughly infiltrated with urine, and probably extremely offensive. To obviate this Mr. C. Mansell Moullin has had made a series of soft instruments in which the interior is dealt with as carefully as the exterior, so that the smooth inner surface may be as easy to clean as the outer. After use, all that should be needed is to place them end up in boric acid solution.

NATURALLY, the introduction of the antitoxin treatment of diphtheria has called forth a whole crop of specially suitable syringes, of which perhaps the best is an exact copy of that recommended by M. Roux of Paris, sold by any instrument maker, and employed by the Metropolitan Asylums Board. The whole can be boiled, the plunger consisting of metal and india-rubber. Messrs. Burroughs, Wellcome and Co. have also produced a syringe the plunger of which is so constructed that by rotating the handle the indiarubber washer can be tightened up,

and thus made quite air-tight. The same firm also sell the antitoxin in dried scales—a most convenient form, which retains its powers for a prolonged period. They are sold in tubes which contain the correct minimal dose—*i.e.* containing 10 c.c. of the actual antitoxin, which can be dissolved in 5 c.c. of water; the injection is by this means reduced in its bulk by one half. Messrs. Allen and Hanburys have devised a new form of syringe which can be used either for the injection of antitoxin or, in a smaller form, for the usual hypodermic medication, the former holding 5 or 10 c.c., the latter 10 or 20 minims. The special feature of the contrivance is that the plunger is made of glass, fitting tolerably close to the barrel, the upper end of the plunger being secured by an asbestos collar, which, when moistened, becomes quite air- and water-tight.

AMONGST the other new instruments devised or constructed by Messrs. Allen and Hanburys the following are worthy of mention:—(1) Mr. Mark Hovell's forceps for post-nasal growths, which are shaped much as these instruments always are, but the ends of the blades are hollow and fit one into the other, whilst the blades themselves are detachable and fitted with a Collins's catch. (2) Hovell's snare for nasal polypi is an ingenious contrivance in which the wire is worked with a ratchet and reel by a suitable thumb-piece, so that the pressure employed can be regulated to the finest possible degree. The instrument is an exceedingly handy and useful one. (3) Hovell's modification of Brunton's auriscope is a distinct improvement on the former type of the instrument, since the reflecting funnel is simply conical and not bell-shaped, thereby increasing and concentrating the light. (4) Macnaughton Jones's nasal plough is intended for use in removing inequalities of the septum, and seems well fitted for this purpose. It practically consists of a rectangular curette, the blade of which is so sharpened that it cuts from behind forwards; this is attached to a suitable handle, whereby the instrument can be accurately governed and guided, or, if need be, considerable force employed. (5) A fresh type of pedicle forceps, in three sizes, has also been made, the special characteristic of which is that the ends of the blades are perforated, so that if the pedicle is first controlled by a snare and the ends passed through the holes, the wire acts as a pilot in assisting the introduction of the forceps, and also ensures that the pedicle is brought well within the grasp of the jaws before the blades are compressed. (6) A useful new combination vaginal speculum has also been devised, consisting

of two metal blades sliding one on the other; by using both blades together a Fergusson speculum is produced, whilst by merely using one half or the other the Sims or a Duckbill type is obtained.

MESSRS. WEISS AND Co. have brought out a very useful **modification of the Paquelin thermo-cautery**, which was suggested by Mr. O'Callaghan. It consists in a new bottle for the benzoline, which renders it impossible to spill this highly inflammable fluid, no matter how the bottle is upset; a bayonet-catch over the rubber cork prevents it from coming out whilst pumping—a very common occurrence with the old type; the metal cautery point is so fixed in the handle that the surgeon can hold it quite close to the point, and thus is enabled to control its action much more accurately than was possible formerly. Practitioners will find this modification a distinct improvement on the old-fashioned instrument. The same firm have also devised a new type of **bed-pan**, which should commend itself to the notice of the profession. It consists of a metal slipper-shaped pan, the top of which is movable, working on a hinge posteriorly, so as to hold in position a loose lining of waterproof paper which receives the dejecta. After use this is easily removed, together with the excreta, which are wrapped up in the paper and dealt with as may be desired. It is evident that such a contrivance reduces to a minimum the unpleasant task of nurses, whilst the appliance is readily cleansed and kept aseptic.

MESSRS. DOWN BROTHERS, of St. Thomas's Street, S.E., have recently introduced the following appliances, which are worthy of mention:—(1) A useful kidney-shaped dressing-dish, to the under surface of which is attached a tube by means of which the fluid used in irrigating a wound can be carried away at once, the necessity of changing or emptying the bowl being thus obviated. It was suggested by Mr. Lacy, of Plymouth, and is especially useful in flushing out chronic abscesses or the peritoneal cavity. (2) A modification of Wingrave's mouth-gag has been introduced by Mr. Lane, consisting of two limbs working up and down a slightly curved steel axis and separated from one another by means of a strong spring. Projecting from the portion which engages the alveolus on each limb are *three sharp spikes*, which are allowed to fix themselves into *the gums* and thus obtain a point of fixation. This appliance *should be especially useful in edentulous patients; where teeth*

are present it is applied behind the last molar. (3) A new and apparently excellent type of hypodermic syringe has been devised in which glass is entirely dispensed with, the barrel consisting of steel nickel-plated; the handle is graduated, and the plunger is of metal, working so accurately within the barrel that with the assistance of a little vaseline an absolutely air-tight junction is produced. It can be readily sterilised by boiling, and there is no leather to get out of order. It is enclosed in a German-silver case, and is one of the best syringes we have seen. The cost is 13s. 6d. (4) Two types of Aëro-urethroscope as suggested by Messrs. Burghard and Fenwick; in each the urethra can be dilated with air after the tube has been passed, and thus any abrasions, ulcers, etc., of the surface can be readily distinguished. Hidden knives and curettes are also arranged in the apparatus. (5) Allcock's ligature trough is a really useful contrivance in which the catgut or silk is kept in a metal box closed by a sheet of plate glass with a thick rubber washer, and secured by a metal clamp. (6) A new ice cup suggested by Sister Louise (A.N.S.) consists of a double cup, the inner portion being perforated so as to allow the water formed by the melting of the ice to run through.

MR. MARMADUKE SHEILD has introduced a new **combination instrument** to the notice of surgeons which should prove of considerable use. It is made of solid steel, and thus can be readily purified by boiling. It practically consists of a slightly-curved double-ended probe, one end being shaped like a flattened dura-mater detacher, whilst the other is provided with an eye so as to act as an aneurysm needle. The probe-end terminates in a deeply-grooved director, and thus many different functions may be subserved by it. It is made by Wright and Co., 108, Bond Street, W.

MESSRS. SALT AND SON, of Corporation Street, Birmingham, have made, at the suggestion of Mr. Henry, of the Birmingham and Midland Eye Hospital, a **magnetic eye spud**, which is especially valuable in removing fragments of steel or iron which have become impacted in the cornea or sclera, thereby obviating in many cases the use of the more cumbersome and less frequently obtainable electro-magnet. It is made of steel, suitably-shaped, and hardened to a proper temper; it is then magnetised to saturation in such a manner as to bring the pole as near as possible to the fine end. Its use has



been attended with considerable success. The same firm have also brought out a new form of **Artificial Eye**, which is particularly recommended for cases where the socket is sunken and atrophied, or where the lids have been interfered with so that an eye of the usual type cannot be worn. It is attached to a spectacle frame, and rests lightly against the lids, having artificial flesh-coloured eyelids carefully moulded around the glass portion, of shape and tint to accord precisely with the requirements of each particular case. It is made entirely of non-corrosive material, and is in no way acted on by the tears or secretions of the eyelids. There can be little doubt as to its utility in certain by no means uncommon cases.

MESSRS. REYNOLDS AND BRANSON, of 13, Briggate, Leeds, have brought out several useful contrivances during the year, among which the following may be noted: (1) A non-runaway bandage, in which by a very simple means, suggested by Dr. Duke, of Cheltenham, the inconvenience and loss of time occasioned by a bandage falling from the hand and unwinding are obviated. Moreover, should only a part of the bandage be employed, the remainder will be left securely rolled for future use. (2) A new type of scraper for the removal of adenoid vegetations from the naso-pharynx, as suggested by Mr. Hewetson. It consists of a ring set at an obtuse angle to the handle, which presents a blunt surface to the soft palate; half the ring is sharpened on each side, so that it can be used for scraping both upwards, downwards, and backwards. It is made in three sizes. (3) A new sponge-holder has been also devised by the same surgeon, which consists of a hollow stem of turned wood or vulcanite, through which passes a string attached to the sponge; the latter is fixed in the trumpet-shaped end of the tube by tightening the string by means of a sliding ring to which it is attached. (4) A very simple enema rack has also been introduced, consisting of a single wire frame, which can be hung on a nail against a wall; at the upper end is a clip to support the valve end, and at the other extremity is placed a small ring holding a bottle, into which the fluid lying within the syringe after washing it out may drain.

IN the anæsthetic department but little advance has been made during the year. Mr. Krohne (Krohne and Sesemann), however, has brought out a slightly improved modification of his *now well-known inhaler for chloroform*, whereby greater exactness and safety are secured during the administration.

Mr. Carter Braine (Weiss and Co., Oxford Street) has also devised a new receptacle for holding the chloroform, of an hour-glass shape, so as to prevent any risk of the chloroform finding its way out of the efferent tube. The importance of some such contrivance as Krohne's inhaler cannot be over-estimated. That chloroform is a much more pleasant and convenient drug than ether, and that it leaves infinitely less unpleasant after-effects, cannot be for a moment questioned, and if one can manage its administration so as to eliminate from it the element of risk as far as is possible, it is far and away the best anæsthetic to employ. By the use of an inhaler of this type the patient has provided for him a sufficient and not too great a dose of chloroform at each inspiration; that is to say, a correct and safe dose is administered which the patient is certain to absorb, instead of receiving a large and unmeasured dose together with a variable quantity of air, as is the case in the usual method of giving the drug on a cloth or towel. As the result of this, the patient is kept under the anæsthetic with the minimum quantity, and, consequently, as soon as the administration ceases, he recovers consciousness very quickly and suffers scarcely at all from after-effects. It stands to reason that if an individual can be anæsthetised for, say, fifty minutes by using two and a half drachms of chloroform, it is infinitely better than employing two and a half ounces, as would be the case if the drug were given on a towel or cloth in the usual way. Dr. R. W. Carter has devised a similar arrangement for the administration of ether, which he terms a **thermo-ether inhaler**. The ether is contained in an anæsthetic bottle to hold two ounces, which in its turn is surrounded by a warm-water jacket which is supported by a strap passing round the administrator's shoulders. The air to be inspired is driven through the ether by a hand-bellows and conveyed to an inhaler similar to that used for chloroform, except that it is possible to fit an indiarubber bag of the Clover type to it. In this way the patient can be kept under with a minimum dose of the drug, and the symptoms of asphyxia, which in ether anæsthesia are always a prominent feature, are immensely diminished. This apparatus is also made by Krohne and Sesemann.

## II.—PHARMACEUTICAL AND DIETETIC NOVELTIES.

THERE are fashions in therapeutics as in dress, and a cynic might say that they change almost as quickly. This is due not so much to fickleness in the medical profession as to the rapidity of scientific progress. Chemistry hurries from one new invention to another, and the panting practitioner toils after her in vain. It has therefore been thought that a brief account of the principal novelties introduced during the past year by the leading manufacturing chemists of England would be a distinct addition to the usefulness of the "Year-Book of Treatment."

### 1. Animal extracts.

THE "stream of tendency" in therapeutics is indicated by the manner in which enterprising firms vie with each other in producing extracts from almost every organ and tissue of the animal economy. The following are among the more important of the preparations of this kind that have recently been placed on the market:—

MESSRS. ALLEN AND HANBURY'S present us with **thyroidin** in the form of an *elixir*, one fluid gramme of which represents an eighth part of an average gland, and *tabellæ*, the latter being a particularly convenient form of administering the remedy; **bone marrow** in the form of an *elixir* so pleasant in taste that it will be taken without repugnance by the most fastidious child, and an *extract* which is put up in cachets of wafer paper, each containing 4 grains; **thymus gland** in the form of an *elixir*; **cerebrin**, or extract of the grey matter of the brain in *tabellæ*; and **splenic, suprarenal, and orchitic** extracts. The therapeutic efficacy of some of these substances, notably thyroidin and bone marrow, has been fully proved; the others are still in a state of probation, and practitioners who may wish to try them have the assurance that in the products of Messrs. Allen and Hanburys' laboratories they have the genuine thing prepared in a thoroughly scientific manner.

F. B. BENDER AND Co., of Manchester, prepare an **extract of red marrow** which has been used by Professor Dixon Mann in a number of cases of anæmia in the Salford Royal Hospital; in *each of these cases* the administration of the remedy was followed *within a few weeks* by a marked increase in the proportion of **red corpuscles in the blood**.

MESSRS. BURROUGHS, WELLCOME AND Co. have, as usual, been in the van of progress in this as in other departments of pharmacy. During the past twelve months they have introduced, in the convenient form of *tabloids* which is a speciality of their firm, the following, among other, preparations of organic substances: **Pituitary body**, which has been administered with the object of improving the nutrition of the brain and giving tone to the muscular system; **pineal gland**, which has been used with apparent benefit in certain cases of functional disease of the brain; **salivary gland; lymphatic gland**, used in cases of lymphadenoma, Hodgkin's disease, and glandular enlargements; **thymus gland**, which has been used with benefit in Graves's disease; **kidney substance**, believed by some to be useful in diseases causing impaired nitrogenous transmutation; **spleen substance**, used in various diseases of the blood; **suprarenal substance**, used in Addison's disease; **pancreas substance**, used in diabetes; **ovarian substance**, which has been tried in functional disorders arising from disease of the ovary; **cerebrinin**, used in chorea, hysteria, and other neuroses; **didymin**, or testicular extract, used in neurasthenia; **red bone marrow**, useful in pernicious anæmia—this substance is also put up in capsules, each containing 5 grains; and **uterine and Fallopian tube substance**, for use in conditions which appear to be direct sequelæ of the removal of the uterus and its appendages.

MESSRS. OPPENHEIMER, SON AND Co., LIMITED, have introduced **palatinoids of thymus gland, cerebrinin, didymin, and red bone marrow**. The palatinoid offers a good means of administering these easily decomposed drugs. Being hermetically sealed, palatinoids will keep perfectly for an indefinite period. They are swallowed with the greatest ease, the flavour and odour of the drugs contained in them being completely hidden.

## 2. Antiseptics and disinfectants.

Of the making of new antiseptics there is no end. Most of those which have been introduced during the past year are referred to elsewhere. (See "Summary of the Therapeutics of the Year 1894-95," p. 418.) Here it is only possible to mention some of the improved forms in which substances already familiar to the practitioner are prepared.

THE **sublimate tabellæ** now supplied by MESSRS. ALLEN AND HANBURYS are very handy when it is desired to prepare quickly antiseptic solutions for sprays and lotions of definite *strength with ease and accuracy*.

MESSRS. BURROUGHS, WELLCOME AND Co. present permanganate of potash in the convenient form of **soloids**, each containing 5 grains; one of these dissolved in one ounce of water makes a solution of the approximate strength of the liquor potassii permanganatis B.P. Among the new antiseptic substances introduced to the English market by this firm are **loretin** (see p. 445), **alumnol**, an aluminol salt which contains about 15 per cent. silver and 5 per cent. aluminium—said to be useful in soft chancres, abscesses, balanitis, etc., and in various affections of the skin; and **phenosalyl**, a mixture of benzoic, salicylic, and carbolic acids melted together and dissolved in lactic acid. It is said to be superior in antiseptic power to carbolic acid. Its advantages are enumerated by Professor Fraenkel as follows:—Easy solubility in water; no danger of toxic symptoms; a pleasant and non-persistent odour, which does not cling about the hands or clothes; no corrosive action on skin or mucous membrane.

The SANITAS COMPANY, LIMITED, have lately introduced the following useful novelties:—The **Sanitas pocket disinfectant**, which is likely to be not only protective, but refreshing and restorative to those who visit the sick or the poor, and generally to those whom duty takes into unwholesome, offensive, or infected places. The disinfectant is supplied in little balls, which can be placed in the pocket-handkerchief and crushed as wanted; **Sanitas moth paper**, for placing in drawers and linen-chests as a safeguard against moths; **Sanitas urinal tablets**, primarily for use in urinals; they can also be adapted for placing in cisterns supplying water-closets, or, suspended in cages, for purifying the air.

### 3. Medicated soaps.

MR. CHARLES MIDGLEY, of Manchester, has earned the gratitude of the medical profession of England by his enterprise in supplying medicated soaps—the value of which, in the treatment of skin diseases, is now generally recognised—of native manufacture. Hitherto medicated soaps have had to be procured from abroad at considerable expense, and their quality has had to be taken largely on trust. Mr. Midgley now supplies medicated soaps which, while fully equal in quality to the best products of *the foreign manufacturers*, are considerably cheaper. In accordance with a suggestion made by Dr. Brooke, of Manchester, the *base is not confined* (as is the case in several of the chief series of *foreign preparations*) to a soap containing an excess of fat,

which is often a hindrance rather than a help in the treatment, but the same drugs have, whenever feasible, been prepared with both superfatted and alkaline bases. Mr. Midgley guarantees all soaps made by him to be absolutely pure and not to contain any free alkali, sulphate of soda, mineral colour, chalk, resin, talc, or sugar. The following is a list of the soaps prepared by him; but other medicinal substances, besides those here enumerated, can be incorporated according to directions:—

**Soaps prepared with alkaline base.** — *Sulphur soap*, containing 10 per cent. sulph. præcipitat. B.P.; *white birch tar*, containing 10 per cent. ol. betulæ alb.; *boracic acid*, containing 10 per cent. acid. boracic. B.P.

**Soaps prepared with superfatted base.**—*Sulphur*, containing 10 per cent. sulph. præcipitat. B.P.; *ichthyol*, containing 10 per cent. ichthyol sulph. amm.; *white birch tar and sulphur*, containing 5 per cent. ol. betulæ alb., 10 per cent. sulph. præcipitat. B.P.; *corrosive sublimate*, containing  $\frac{1}{2}$  per cent. hydrarg. perchlor. B.P.; *eucalyptol*, containing 5 per cent. ol. eucalypti; *creolin*, containing 10 per cent. creolin; *ichthyol and tar*, containing 5 per cent. ichthyol sulph. amm. and 5 per cent. pix liquid.; *menthol*, containing  $2\frac{1}{2}$  per cent. menthol; *menthol and eucalyptus*, containing  $2\frac{1}{2}$  per cent. menthol and 5 per cent. ol. eucalypti; *naphthol and sulphur*, containing 10 per cent. naphthol and 10 per cent. sulph. præcipitat. B.P.; *sulphur, camphor, balsam of Peru*, containing 5 per cent. sulph. præcipitat. B.P., 5 per cent. camphor, and 3 per cent. bals. Peru; *thymol*, containing 3 per cent. thymol; *white precipitate*, containing 5 per cent. hydrarg. am. chlor. B.P.; *iodide of potassium*, 10 per cent pot. iodid. B.P.

The SANITAS COMPANY, LIMITED, prepare a **eucalyptus soap** which is described as an opaque superfatted soap particularly adapted for tender or sensitive skins. It is a delightfully fragrant, well-made soap, of great cleansing power, and highly refreshing in its effect.

#### 4. Surgical dressings.

MESSRS. THOMAS CHRISTY have introduced **Christia lint**, which is backed with their well-known Christia tissue, and is therefore unaffected by oil, grease, spirit, chloroform, and water. The material is very useful for the application of chloroform liniment, chloroformum belladonnæ, and other remedies which would soil clothing or destroy ordinary waterproof substances. The backing prevents evaporation and renders the

use of oil-silk unnecessary. The Christia lint is a comfortable, cleanly material for the application of anodyne substances in neuralgia, lumbago, etc.

### 5. Foods.

MESSRS. ALLEN AND HANBURY, as is well known, make a speciality of infants' foods, and they have earned the gratitude of the mothers of England, and of the medical profession, by their excellent preparations of this kind. During the past year they have added to the benefits already conferred by them on the rising generation by introducing a **first food for infants** (No. 1) which contains all the constituents of human milk in their natural proportions. This preparation is specially adapted for infants from birth to three or four months of age. The **mothers' milk food** (No. 2), prepared by the same firm, in addition to all the elements of human milk in their natural proportions, contains a small proportion of the soluble product of the action of malt upon wheat, which increases the nutritive value of the food and assists digestion. It is stated to be absolutely free from starch in the unaltered condition, and free from any excess of casein, which forms curds. It is specially adapted to infants under seven months of age. After seven months of age Allen and Hanbury's well-known **malted food** (No. 3) may be used with advantage.

MESSRS. BURROUGHS, WELLCOME AND Co. are the European agents for the following nutritive and digestive preparations made by Messrs. Fairchild Brothers and Foster of New York :—

**Peptogenic milk powder**, which, added to diluted cow's milk to which cream has been added, will bring it to about the same strength and composition as human milk. The milk prepared in this way has the digestibility and nutrient value of mothers' milk. **Panopepton**, which consists of the entire edible substance of prime lean beef and best wheat flour, cooked, digested, sterilised, and concentrated *in vacuo*. It is useful as a food in acute and wasting diseases, protracted convalescence, anæmia, etc. **Pepsencia**, a solution of the essential organic ingredients of the gastric juice extracted directly from the peptic glands of the stomach.

MESSRS. CALLARD AND Co. have during the past year introduced some new foods for persons suffering from diabetes and obesity. Among these may be mentioned **soy bread without starch; brown bread; almond bread; meat biscuits; Parmesan cheese straws**, all of which are unsweetened. Other novelties supplied by this firm are **Dr. Williamson's aleuronat**



**biscuits, and walnut, hazel-nut, pine-nut biscuits, and almond shortbreads**, which are all well suited for dessert or afternoon tea.

MESSRS. THOMAS CHRISTY have introduced a **neokola** preparation which, with the exception of a trace of vanilla flavouring, contains nothing but pure kola. The stimulating and sustaining properties of kola are well known. Neo-kola, as a beverage, is said to combine the good properties of tea, coffee, and cocoa while having no bad effect on the digestion.

MESSRS. G. AND G. STERN have introduced **Narissa**, a new food of high nutritive value, especially adapted for invalids, children, and aged persons. It is a *complete* food, and contains 21 per cent. of albumen, over 8 per cent. of fats, and mineral constituents, principally phosphates. It is palatable and digestible, and can be taken as a beverage instead of tea, etc. ; or, if made thick, it forms a good substitute for oatmeal porridge.

#### [ 6. Miscellaneous.

MESSRS. ALLEN AND HANBURY put up a number of drugs in **flexible gelatine capsules**, which retain their solubility for any length of time. These capsules are not permeable to the odour of the drug, and they form an excellent means of administering nauseous remedies. Among the substances put up in capsules may be mentioned **castor oil, valerian, Gregory's powder, Easton's syrup, guaiacol in oil**; the same with **iodoform, Bland's pills**; the same with **arsenic, arsenic and nux vomica, nux vomica, euonymin and nux vomica, phenacetin, paraldehyde, sulphonal, quinine sulphate, salicin**, etc. This firm is justly famous for its lozenges ; among the novelties in this line are pastilles of rhatany and menthol (extr. krameriae grs. ij., menth. gr.  $\frac{1}{20}$ ) and of cocaine and menthol,  $\bar{a}\bar{a}$  gr.  $\frac{1}{20}$ , which should be useful in painful and inflammatory conditions of the throat. Among Messrs. Allen and Hanburys' new preparations must also be mentioned their **effervescent granules of piperazin**, which will, it is claimed, dissolve twelve times as much uric acid as lithium carb. The stopper of the bottle is surmounted by a wooden cup holding a teaspoonful, so that a dose can easily be measured out for himself by the patient.

MESSRS. BURROUGHS, WELLCOME AND Co. supply tabloids of **Easton's syrup** in two strengths, equivalent respectively to one half drachm and one drachm of the freshly-prepared syrup. In this form this valuable but unstable tonic is said to keep for

an indefinite time in any climate. They have also added to their list tabloids of taurocholate of soda, and of ox bile, which may be of service in cases of deficiency of bile arising from organic disease of the liver; the irritating effect of the bile on the gastric mucous membrane is prevented by a coating of keratin, which dissolves only in the alkaline secretion of the intestine some distance from the duodenum. The same firm prepare a **compound menthol snuff**, composed of menthol, ammon. chlor., cocaine, lycopodium and camphor, which is likely to be useful in checking nasal catarrh.

MR. MARTINDALE'S list of new preparations includes:—**Tubes of chloroform** encased in cotton-wool, containing 1 fluid drachm, thus avoiding over-dosage—convenient for use in obstetric cases; **saline solution saturated**, containing 120 grains of pure chloride of sodium in sterilised solution, sufficient to form two pints of normal solution, to be used for intravenous injection in cases of severe hæmorrhage; **chloralifrice**, a detergent saline tooth-paste, useful in tenderness of the mouth or for foul breath. This contains, as its principal ingredient, chlorate of potassium in fine powder, which is useful both for the purposes of attrition and for aphthous affections of the mouth and spongy conditions of the gums. Mr. Martindale has also introduced **pastoids**, medicated guimauve pastils for throat affections, containing boric acid and boric acid with cocaine.

MESSRS. OPPENHEIMER, SON AND Co., LIMITED, have, in the course of the last twelve months, introduced the following novelties:—**Cream of malt, with cod-liver oil and chocolate**, a preparation in which the taste of the fishy flavour of the oil is so successfully disguised that even very young children will take it without objection. **Compound hypophosphites bipalatinoids**. Each bipalatinoid is equivalent to one teaspoonful of the compound syrup of hypophosphites of iron, quinine, strychnine, manganese, lime, soda and potash, and can be taken with greater accuracy of dosage and freedom from decomposition than the syrup. Palatinoids, each equivalent to Easton's syrup, half drachm and one drachm, and Parrish's food (Ferri Phosph. Co.), are also prepared. They have also introduced **Ergole**, a highly concentrated extract of freshly collected ergot, *three times* the strength of the B.P. fluid extract. It may be administered either by the mouth or injected subcutaneously. When used hypodermically, it does not cause local irritation, nor does it excite nausea.

MESSRS. G. AND G. STERN have introduced **zalone**s, or lozenges with a basis of chlorate of potash, milk sugar, gum arabic, and liquorice. Each one contains 1 minim of puniline essence and 1 of menthol. They are useful in irritation of the throat and windpipe, and relieve cough.

Among the novelties introduced by MESSRS. WILLIAM R. WARNER AND Co. are improved preparations of **ingluvin**, a substance extracted from the *ventriculus callosus* of the fowl, and said to be superior to pepsin as a digestive; it is useful in dyspepsia, and it often succeeds in checking the vomiting of pregnancy when everything else has failed. A well-known speciality of this firm are the *parvules* or tiny pills designed for the administration of remedies in small doses frequently repeated. Their effervescent **Lithia Tablets**, each containing 3 grs., also deserve favourable mention.

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